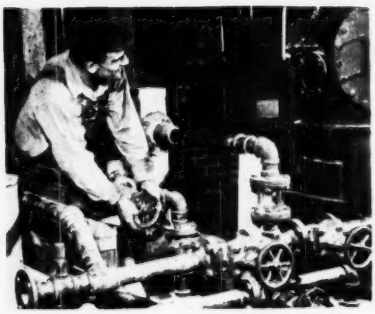
Chemical Week

December 29, 1951 Price 35 cents



Textile chemicals are badgered by these worries: sales slump, foreign competition . . . . . p. 11

Probers eye "alien" property; probability: fast jettison of some chemical holdings . . . . . p. 14

CW Camera tours "PE" plant; sees it gear up to meet mounting demand . . . . . p. 20

There's a spate of new research-based uses afoot for hydrogen peroxide . . . . . p. 27

Superphosphate will be short; phosphoric acid from phosphorus will help—but not enough . p. 39

A McGRAW-HILL PUBLICATION

serving America's leading industries!

Westvaco®
CHEMICALS

CAUSTIC SODA

Liquid 50%,
Standard and Rayon Grades

Liquid 70-73%,
Standard Grade; Flake and Solid

NATURAL SODA ASH

Light and Dense

CAUSTIC POTASH

Liquid* 45%,
Flake and Solid

Every commercial grade in every form backed by friendly, dependable service from our growing alkali division!

If we aren't furnishing a fair share of your requirements we will welcome the opportunity to discuss your needs and our ability to serve you well through barge, rail and tank-truck service from various Westvaco plants.

*Liquid 50% also available, shipped in tank cars only.

WESTVACO CHEMICAL DIVISION
FOOD MACHINERY AND CHEMICAL CORPORATION
GENERAL OFFICES • 405 LEXINGTON AVENUE, NEW YORK 17
CHICAGO, ILL. • CLEVELAND, OHIO • CINCINNATI, OHIO • CHARLOTTE, N. C.
ST. LOUIS, MO. • POCATELLO, IDAHO • LOS ANGELES, CALIF. • NEWARK, CALIF.

fmc

Chemical Week

Volume 69 Number 26

December 29, 1951

OPINION	2
NEWSLETTER	7
BUSINESS & INDUSTRY	11
PRODUCTION	20
RESEARCH	27
SPECIALTIES	31
BOOKS	34
MEETINGS	34
MARKETS	37
BOOKLETS	44

PUBLISHER ..... Wallace F. Traendly
EDITORIAL DIRECTOR .... S. D. Kirkpatrick
EDITOR .....W. Alec Jordan
MANAGING EDITOR .. Howard C. E. Johnson
ASSOCIATE EDITORS: John J. Craig, Herman W. Zabel. ASSISTANT EDITORS: Donald P. Burke, Joseph Gordon, Ralph R. Schulz. REGIONAL EDITORS: Frank C. Byrnes, Chicago; John Kent, Washington; James A. Lee, Houston; Elliot Schrier, San Francisco. ART EDITOR: Woodfin G. Mizell, Jr.
EDITORIAL ASSISTANTS: Claire Baker, Dennis J. Lynds, Leona Mahler, William Olcott. DOMESTIC AND FOREIGN NEWS SERVICE: McGraw-Hill Bureaus in principal cities of the U. S. and throughout the world.
CONSULTING EDITORS: Lawrence W. Bass, Benjamin T. Brooks, John V. N. Dorr, Charles R. Downs, Ernest W. Reid, Norman A. Shepard, Roland P. Soule, Robert L. Taylor.
BUSINESS STAFF & REGIONAL OFFICES: See page facing back cover.

Chemical Week (including Chemical Specialties, and Chemical Industries) is published weekly by McGraw-Hill Publishing Company, Inc., James H. McGraw (1860-1948), Founder. **Publication Office: 1309 Noble St., Philadelphia 23, Pa.**

Executive, Editorial and Advertising Offices: McGraw-Hill Building, 330 W. 42nd St., New York 36, N. Y. Curtis W. McGraw, President; Willard Chevalier, Executive Vice-President; Joseph A. Gerardi, Vice-President and Treasurer; John J. Cooke, Secretary; Paul Montgomery, Senior Vice-President, Publications Division; Ralph B. Smith, Editorial Director; Nelson Bond, Vice-President and Director of Advertising; J. E. Blackburn, Jr., Vice-President and Director of Circulation.

Subscriptions to Chemical Week are solicited in the chemical and process industries only from management men responsible for corporate affairs, purchasing, sales, marketing, packaging, research or chemical functions. Position and company connection must be indicated on subscription order. Address all subscription communications to J. E. Blackburn, Jr., Director of Circulation. Allow ten days for change of address.

Single copies 35¢. Subscription rates—United States and Possessions $5.00 a year; $8.00 for two years; $10.00 for three years. Canada $6.00 a year; $10.00 for two years; $12.00 for three years. Pan American countries $15.00 a year; $25.00 for two years; $30.00 for three years. All other countries $25.00 a year; $40.00 for two years; $50.00 for three years. Entered as second class matter April 5, 1951, at the Post Office at Philadelphia 23, Pa., under the Act of March 3, 1879. Printed in U.S.A. Copyright 1951 by McGraw-Hill Publishing Co., Inc.—All Rights Reserved.

ORES · METALS · METALLIC RESIDUES · FERRO-ALLOYS

COPPER · TIN · LEAD · MERCURY · TUNGSTEN · ZINC · CHROME · ANTIMONY · TANTALITE · COLUMBITE · MANGANESE · MOLYBDENUM · ZIRCON · BERYLLIUM · RUTILE · NICKEL · CADMIUM · ALUMINUM · MONEL · ARSENIC

Philipp Brothers, Inc.
70 PINE STREET • NEW YORK 5, N. Y.
BOwling Green 9-1313 Cables: PHIBRO, New York
PHILIPP BROTHERS (Holland) N.V.,
37, Roemer Visscherstraat, Amsterdam
PHILIPP BROTHERS (Canada) Ltd.,
1440 St. Catherine St. W., Montreal, Quebec
AFFILIATED COMPANIES THROUGHOUT THE WORLD

Phibro

INDUSTRIAL CHEMICALS

COPPER SULPHATE · SODIUM CYANIDE · ZINC CYANIDE · POTASSIUM CYANIDE · SODIUM PERBORATE · COTTON & FILM SOLUTIONS · PARADICHLOROBENZENE · SODIUM SULPHIDE · ZINC OXIDE French Process, all grades · DIOCTYL PHTHALATE · DIBUTYL PHTHALATE · TRICRESYL PHOSPHATE · ALL OTHER PLASTICIZERS

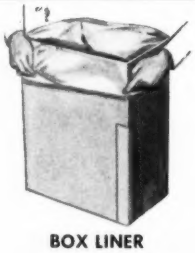
Philipp Brothers Chemicals, Inc.
37 WALL STREET • NEW YORK 5, N. Y.
HAnover 2-4676
Cable Address: PHIBROCHEM NEW YORK
BOSTON 10, MASS. • PORTLAND, CONN. • PHILADELPHIA 6, PA.
BALTIMORE 1, MD. • PROVIDENCE 3, R.I.

Polyethylene Plastic
DRUM LINERS
by
MEHL

Spectacular economies are effected through these new methods of shipping bulk chemicals. Minimum waste . . . eliminate re-cleaning cost . . . provide top protection for your valuable products.

STEEL DRUM LINER

FIBRE DRUM LINER



BOX LINER

Write, wire or phone us concerning your particular problems.

MEHL MFG. CO.
Phone: CHerry 6430 • 2059 READING ROAD
CINCINNATI 2, OHIO

A DIVISION OF MEHL BAGS
SIDNEY-THOMAS CORP.

OPINION . . . . . .

What's Behind Controls

TO THE EDITOR: Reference is made to a letter written by Mr. C. A. Clark* published in your issue of Dec. 8th.

It is the policy of the NPA to have inventory controls made effective when and as they are required. This calls for the addition of materials which are in short supply to the list of items subject to inventory limitations when it becomes known that such controls are required. It likewise calls for the removal of materials from the list of items subject to inventory control when the supply situation in relation to demand so improves as to obviate the necessity for controls.

The basic medium employed in this connection is NPA Regulation 1, covering inventory controls on noncontrolled materials. This regulation was last revised on October 22, 1951. An amendment of the regulation, which will delete certain of the items contained in the October 22 list and add new items to the list of materials subject to inventory control, will be issued within the next few days. It is contemplated that this regulation will be reviewed periodically, and that the list of items subject to the control will be revised every eight weeks or less so as to reflect changing conditions of supply and demand.

The Administrator of NPA Reg. 1 is responsible for periodic revisions of the list of items subject to inventory control. He takes the initiative in removing from the list materials no longer in short supply and in adding other materials which should be subject to control.

As a normal procedure, the recommendations of the several industry and material divisions of NPA are solicited. Consideration is also given to Industry Advisory Committee suggestions and recommendations received from individual firms . . .

In the case of allethrin, some doubt existed as to whether indicated available supply for the foreseeable future would, in fact, be adequate to meet the demands for this chemical. Because of this uncertainty, it was decided to retain allethrin on the list of items subject to the practicable minimum working inventory limitation pending further and more careful examination of the supply and demand situation.

Should we find that the supply is indeed ample and is likely so to remain for the foreseeable future, consideration will be given to its removal from the list of items subject to inventory control in a forthcoming amendment of the regulation.

It should be pointed out, however, that the control now in effect on allethrin is one of a practicable minimum working inventory. This limitation, it is believed, should work no undue hardship on any user of allethrin and should not affect the distribution of this material into commercial channels.

There is definitely no intention nor desire to keep items in classifications in which they do not belong. It is our intention, rather, to eliminate controls whenever this can be done without harm to the economy and to the defense effort.

It is recognized that on occasion some hardship may result to individuals as a consequence of the great care being taken in determining whether or not an item should be removed from inventory controls.

It is our conviction, however, that the welfare of the nation as a whole requires that such care be exercised.

N. B. SALANT
Administrator,
NPA Reg. 1 & CMP Reg. 2
National Production Authority,
Washington, D. C.

* Vice-president and general manager, McLaughlin Gormley King Co., who said: "We have ample stocks, in spite of a cut-back production schedule, to take care of all the allethrin demand we can find.

"We have successfully taken care of all demands for allethrin . . . continue to find . . . [it] . . . under the Inventory Control Regulation of Priority Reg. 1 and in Group 1 in the NPA Guide to Purchasing.

"The apparent multiplicity of this type of occurrence . . . makes one wonder . . . [to see] . . . items [kept] in classifications in which they do not belong."

To Refresh, Elevate

TO THE EDITOR: Another "On-the-Job College" (Nov. 24) is "Spencer University" of the Spencer Chemical Co. . . . with college credit given through participating schools.

During the past five years there have been courses in advanced and basic chemistry, physical chemistry, industrial chemistry and physics . . . to elevate or refresh technical personnel, purchasing agents, researchers, and production employees.

Like Humble Oil & Refining's Lectures in Science described in your Nov. 24 issue, the courses are voluntary and intensive. Chemical thermodynamics refresher courses were taught by a Kansas University professor—requiring an air flight weekly to reach the class.

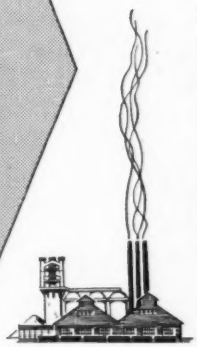
Other courses in the company auditorium are conducted by accredited instructors of nearby Kansas State Teachers' College (Pittsburg, Kan.).

The "Spencer University" system includes language courses, viz: scien-

chemicals for industry and laboratory

INDUSTRIAL CHEMICALS

FROM **HARSHAW CHEMICAL**



Electroplating Salts, Anodes and Processes
Driers and Metal Soaps
Ceramic Opacifiers and Colors
Fluorides
Preformed Catalysts, Catalytic Chemicals
Glycerine
Synthetic Optical Crystals
Agricultural Chemicals
Fungicides
Chemical Commodities

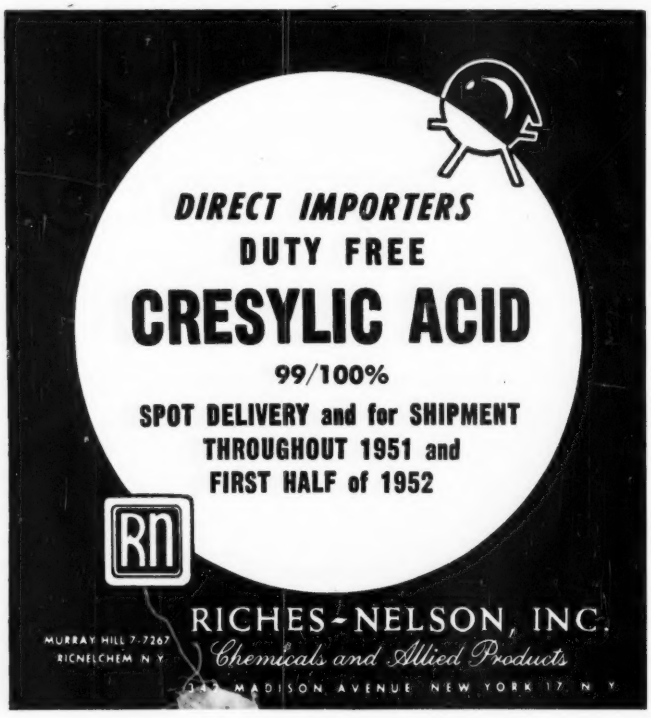
THE HARSHAW CHEMICAL CO.
CLEVELAND 6, OHIO
Cleveland • Chicago • Cincinnati • Detroit • Houston
Los Angeles • New York • Philadelphia • Pittsburgh

LABORATORY APPARATUS & CHEMICALS

FROM **HARSHAW SCIENTIFIC**

Harshaw Scientific Division of The Harshaw Chemical Co. is a logical expansion of Harshaw's progress in the chemical field. Laboratories need apparatus and chemicals to carry on their work. Thousands of items are carried in stock by Harshaw Scientific. Your requirements can be filled, whether you need chemicals and apparatus for a single experiment, or to furnish a complete laboratory. Branch offices and stocks are maintained in convenient locations to help you obtain your requirements within a short time.

HARSHAW SCIENTIFIC
DIVISION OF THE HARSHAW CHEMICAL CO.
CLEVELAND 6, OHIO
Cleveland • Cincinnati • Detroit • Houston • Los Angeles • Philadelphia



OPINION . . . . . .

tific German, taught by multi-language abstractors for research personnel. . . .

Employees at the Henderson Works travel to Indiana's Evansville College for night classes. . . .

The company reimburses 75% of the total cost of any approved course of study—including correspondence schools—upon satisfactory completion. This system has been studied by a number of industrial groups as a model in developing similar programs within their own plants.

S. P. Horkowitz
Laboratory Supervisor
Spencer Chemical Co.
Henderson, Ky.

Name & Mark

To The Editor: I have just had an opportunity to use your recently published Chemical Week Buyers' Guide . . . wish to commend you for the excellent piece of work that you have produced.

I was particularly pleased to note the manner of treatment utilized in the compilation contained in the "Trade Names" section, as well as the extent and scope of compilation.

While I doubt that anyone can improve upon such compilation, I should like to suggest that in the future editions of this "Guide" you change the title of this section to read "Trademarks and Trade Names."

As I am sure you realize, there is a difference between a trademark and a trade name, and many of the items contained in your compilation are strictly trademarks, not trade names.

With respect to our own Pyrex and Vycor trademarks, I should like to suggest that you . . . insert an "R" in a circle after each of these trademarks to indicate that they are registered in the U. S. Patent Office.

I note that you have infrequently followed this practice in the present compilation and believe that it would be very desirable to make its use more general.

Rolf E. Schneider
Corning Glass Works
Corning, N. Y.

Thank you, Reader Schneider, for two welcome suggestions which we plan to adopt.—Ed.

CW welcomes expressions of opinion from readers. The only requirements: that they be pertinent, as brief as possible.
Address all correspondence to: The Editor, Chemical Week, 330 W. 42nd St., New York 36, N.Y.

WHERE you get it... DOES make a difference

When you place your order with Barrett you're assured prompt, dependable service and top quality products, backed by 97 years of successful manufacturing experience.

WHEN YOU NEED A COAL-TAR CHEMICAL – GET IT FROM...

Phenols	Phthalic Anhydride	Lutidines
Cresols	Dibutyl Phthalate	Tar Acid Oils
Cresylic Acids	ELASTEX* DCHP Plasticizer	Neutral Coal-tar Oils
Chlorinated Tar Acids	"ELASTEX" 10-P Plasticizer	Coal-tar Creosote
Xylenols	"ELASTEX" 50-B* Plasticizer	CUMAR* Paracoumarone-Indene Resin
Pickling Inhibitors	"ELASTEX" 28-P Plasticizer	Carbonex* Rubber Compounding Hydrocarbon
Benzol	Phenolic Resins	Bardol* Rubber Compounding Oil
Toluol	Niacin (Nicotinic Acid)	Flotation Agents
Xylol	Pyridines	
Naphthalene	Picolines	
Hi-Flash Solvent	Quinoline	

Barrett*

*Reg. U. S. Pat. Off.

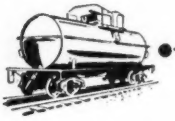
THE BARRETT DIVISION
ALLIED CHEMICAL & DYE CORPORATION
40 Rector Street, New York 6, N. Y.

The + in Hooker Caustic Soda *is SERVICE*

When you buy a basic chemical like caustic soda, *service* is an important factor in determining your source of supply. As a basic producer, Hooker offers you these advantages:

1. Caustic soda of high purity, low in iron and sulfates . . .

and



2. Modern equipment for loading and shipping to maintain that purity from our plant to the user's plant . . .

+

An experienced technical service staff to help you use and handle caustic soda.

To you this means minimum processing costs through elimination of variations in quality from shipment to shipment. To make sure that Hooker Caustic reaches you as pure as it leaves us, we coat Hooker tank cars with a special protective lining. Each car is completely insulated and equipped with a heating device to make handling and unloading uniform the year around.

\+ You can reduce processing costs further through the safe and efficient handling of caustic soda. This is where the specialized knowledge of our technical service staff can help you.

For analyses and specifications on Hooker Caustic Soda, write on your business letterhead for Technical Data Sheet No. 735.

Hooker Caustic Soda is sold in solid, flake or liquid form. Liquid is supplied in 50% and 73% concentration.

From the Salt of the Earth

HOOKER ELECTROCHEMICAL COMPANY

HOOKER CHEMICALS®

1-1248

3 FORTY-SEVENTH ST., NIAGARA FALLS, N. Y.
NEW YORK, N. Y. • WILMINGTON, CALIF. • TACOMA, WASH.

SODIUM SULFIDE • SODIUM SULFHYDRATE • SODIUM BENZOATE • CHLORINE • MURIATIC ACID • PARADICHLOROBENZENE • MONOCHLOROBENZENE

NEWSLETTER

As chemical companies wrestle with last-minute polishing of 1952 budgets, they can look forward to a year that will be similar in most respects to the one now slipping by: high sales volume, but a squeeze on profits both by increasing costs and excess profits taxes.

Wages are trending upward; construction costs (including steel) will undoubtedly rise; competition will put a lid on prices—even aside from price controls; technical men will be hard to find.

But defense needs will keep production lines humming, and the resulting high sales volume will cushion the effects of these factors—which in a lower-gear economy might well have spelt trouble.

Looking beyond 1952 toward a likely slackening of military procurement, chemical management men see a "readjustment" in the cards; but most of them expect a slight downhill roll rather than a precipitate drop. Expansion plans are still active—and they attest, better than words, to solid optimism concerning the industry's next several years.

Among the newsworthy expansions this week are Westvaco's and Shawinigan's—soda ash and vinyl compounds, respectively.

Westvaco Chemical Division has received the first certificate of necessity for soda ash facilities—for the 300,000 tons-a-year, $20 million refining plant it plans to build (CIW, May 5) near Green River, Wyoming. The certificate covers $16.3 million of the plant cost.

What's more, Westvaco hopes to follow this initial unit with two more of the same size. They'd be less expensive, thinks the company.

Shawinigan Resin's new polyvinyl alcohol plant at Springfield, Mass., is scheduled for early completion; and Shawinigan Chemicals is upping vinyl acetate capacity at Shawinigan Falls, Que.

No plant yet—but look for intensive activity in the field of hydrazine production by a new Guggenheim Bros. partnership. The reorganized firm is carrying out developmental research on a low-cost process at its Mineola (Long Island) laboratories.

You can write Alamo Chemical Co. off as a joint venture (CW Newsletter, Sept. 15) of General Aniline, Borden, and Phillips Chemical.

Phillips wanted to control the enterprise, but the other partners wouldn't agree to that setup. Now Phillips is going ahead on its own with a $30 million ammonia and methanol plant near its Houston Ship Channel facilities. Plans to produce acetylene have been shelved.

Here's the Washington barometer of chemical "weather:"

Office of International Trade is upping export quotas on hydraulic fluids made of glycols, alcohols and other organics. First-quarter increases over the current quarter are 10% to 20%.

NPA will start January 1 to allocate imported pig lead.

Relaxation of rubber controls continues. Latest to go are restrictions on GR-S use and total new rubber consumption.

The U.S. isn't the only country suffering a textile slowdown and a consequent slump in textile chemicals (see p. 11).

In Canada, the United Textile Workers of America (AFL-TLC) has asked the Dominion Government to trim textile imports, provide relief for the grave unemployment in the Canadian industry.

The union suggested an embargo on U.S. goods in particular—a move that could deal a blow to U.S. chemical makers.

Typical of many chemical companies' experience in 1951 is Harshaw Chemical Co.'s, whose fiscal year ended September 30.

Sales—at $47,537,854—set a new record; the year before they were $38,952,839. But net profits sagged from $1,647,772 to $1,456,679. Taxes? You guessed it: up from $1,099,102 to $3,129,650.

Stockholders of Olin Industries, Inc., newest cellophane producer, approved a three-for-one common stock split and acquisition of Frost Lumber Industries—which has timberland, sawmills, railroads, oil and gas properties throughout the Southwest. It will operate as an Olin division.

The consolidation gives Olin 450,000 acres of forest land, which will support—on a perpetual-yield basis—the nitrating and dissolving wood pulp mill it plans to build: location undecided.

Acquiring seems to be the characteristic of the week. Dow Chemical has bought 600 acres of land near Williamsburg, Va., for a possible future plastics plant.

Fronting on the James River, the site permits delivery of raw materials by boat from Dow's Texas Division at Freeport.

Here, on the other hand, is a divestiture: In another step to tighten up its activities, Heyden Chemical Corp. has sold Jamieson Pharmacal Co., Nyal Co., and its Canadian subsidiary, C. E. Jamieson & Co. (Dominion) Ltd., to a group of private investors.

Heyden had previously sold its share of American Potash & Chemical, its Rumford Division (baking powder, sulfuric acid), and its Memphis plant (caustic, chlorine, hydrogen).

Concentrating on a few products rather than a diversity, Heyden is now spending $8½ million to boost capacity for antibiotics, pentaerythritol (see p. 20), resorcinol, chlorinated toluene derivatives, methanol and formaldehyde.

Stream pollution in Oregon may soon be licked. Crown Zellerbach Corp.'s process for evaporating and burning its sulfite waste—rather than dumping it—is passing from the pilot stage to permanent installation.

Key to the process—which has had two years' study at the firm's Lebanon, Ore., plant—is use of ammonia instead of lime for pulping.

Another way to use sulfite liquor is getting a try in Wisconsin. There coal dust is pressed into bricks, with sulfite waste as a binder. The product, says F. Hurlbut Co. (Green Bay), maker of the blocks, is cheaper than coarse coal of the same quality.

"It's a sin to tell a lie"—and moreover it's not likely to succeed at the Oak Ridge atomic energy plant. Periodic lie-detector tests are required of certain key personnel.

The apparatus was installed on an experimental basis when the Army was running the plant.

. . . The Editors

POSITIVE RESULTS

ADVANCE specialty chemicals are designed and manufactured with the greatest of scientific and technical skills to produce results.

As pioneers in chemistry for the process industries, ADVANCE has, over the years, developed as a sort of private laboratory for manufacturers faced with special problems. While most production problems will be solved with the proper use of the ADVANCE products listed, our well-trained staff is readily available at all times — and without obligation—to tackle the unusual.

ADVANCE products include

STABILIZERS

FUNGICIDES

PLASTICIZERS

PAINT DRIERS

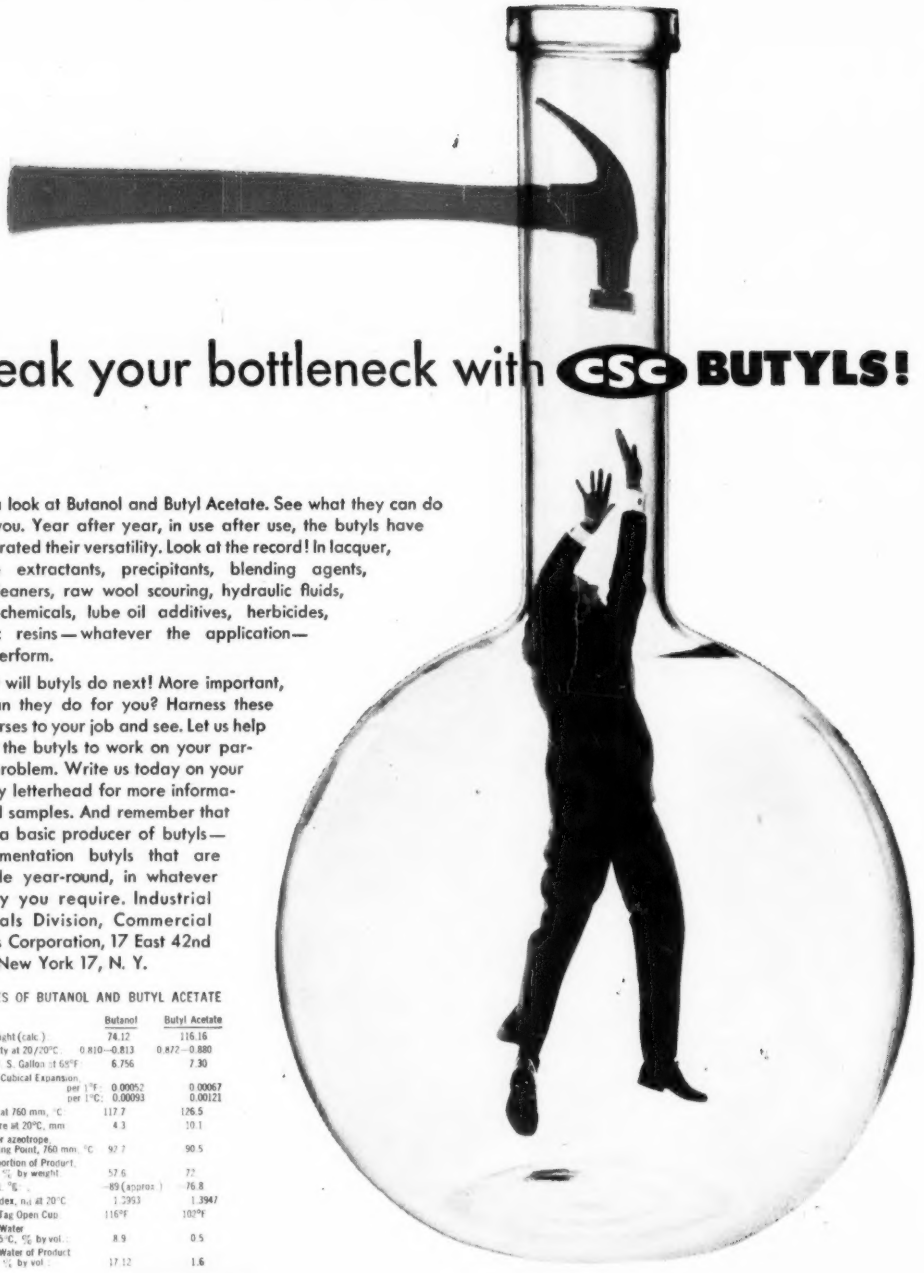
LUBE OIL ADDITIVES

METALLIC STEARATES

PAINT INDUSTRY SPECIALTIES

ADVANCE SOLVENTS & CHEMICAL CORP.

245 FIFTH AVENUE, NEW YORK 16, N.Y.



break your bottleneck with CSC BUTYLS!

TAKE a look at Butanol and Butyl Acetate. See what they can do for you. Year after year, in use after use, the butyls have demonstrated their versatility. Look at the record! In lacquer, selective extractants, precipitants, blending agents, metal cleaners, raw wool scouring, hydraulic fluids, rubber chemicals, lube oil additives, herbicides, synthetic resins—whatever the application—butyls perform.

What will butyls do next! More important, what can they do for you? Harness these work-horses to your job and see. Let us help you put the butyls to work on your particular problem. Write us today on your company letterhead for more information and samples. And remember that CSC is a basic producer of butyls—corn-fermentation butyls that are available year-round, in whatever quantity you require. Industrial Chemicals Division, Commercial Solvents Corporation, 17 East 42nd Street, New York 17, N. Y.

PROPERTIES OF BUTANOL AND BUTYL ACETATE

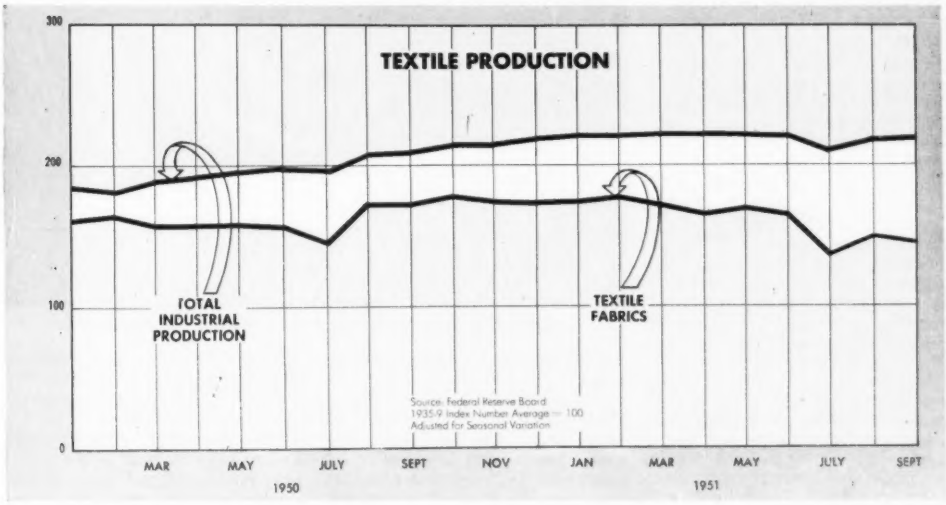
	Butanol	Butyl Acetate
Molecular Weight (calc.)	74.12	116.16
Specific Gravity at 20/20°C.	0.810—0.813	0.872—0.880
Pounds per U. S. Gallon at 68°F.	6.756	7.30
Coefficient of Cubical Expansion, per 1°F.	0.00052	0.00067
per 1°C.	0.00093	0.00121
Boiling Point at 760 mm., °C.	117.7	126.5
Vapor Pressure at 20°C., mm.	4.3	10.1
Product-Water azeotrope, Boiling Point, 760 mm., °C.	92.7	90.5
Proportion of Product, % by weight	57.6	72
Melting Point, °C.	—89 (approx.)	—76.8
Refractive Index, n_D at 20°C.	1.3993	1.3947
Flash Point, Tag Open Cup	116°F.	102°F.
Solubility in Water at 25°C., % by vol.	8.9	0.5
Solubility in Water of Product at 25°C., % by vol.	17.12	1.6

CSC

COMMERCIAL SOLVENTS CORPORATION INDUSTRIAL CHEMICALS DIVISION

ACIDS • ALDEHYDES • ALCOHOLS ESTERS • AMINES • AMINO ALCOHOLS
NITROGEN COMPOUNDS • NITRO COMPOUNDS • SOLVENTS • PLASTICIZERS • INTERMEDIATES

BUSINESS & INDUSTRY . . . . .



Textile Chems Turn Corner

Marketing textile chemicals is a feast-or-famine business; current status: famine.

But the end of the lean period is in sight. Consensus is that demand will return to profitable levels by late spring.

Greatest demand during this slow period has been for the chlorine- and light-fast vat dyestuffs.

Dyestuff and textile assistant manufacturers never had it so good as in the last half of 1950 and the first quarter of 1951. But today the whole textile market lags far behind the general rate of industrial production (see chart). This is also true for the market for textile chemicals; although some few signs of an upturn are beginning to appear. Industry consensus: Demand will be at profitable levels by spring.

Manufacture of textile chemicals never plumbed the depths reached by the general textile market. Actual sales of textile chemicals, as distinguished from production, were much slower, on the other hand, than would be expected from the sales rate of finished textile products. The reason for this apparent paradox is that dyestuff manufacturers, in particular, dipped into their normally huge inventories* to meet the abnormally high demands of the latter part of 1950 and the early part of 1951. One trade source has estimated that textile finishers were buying about 15% more product than they could actually use for a great portion of this period of high demand.

But about last March they stopped stowing it away "just-in-case." The scarcities they anticipated — and against which they were "scare-buying"—never materialized, except for a very few items. About six vat (anthraquinone) colors were short because they were specified for certain Government contracts.

Best Performer: The strong demand for vat dyes has continued; sales during this period of doldrums have been the bright ray relieving the dye manufacturers' gloom. Not only has demand for these materials by the Government been high, but their consumption in normal civilian uses has been continually increasing.

Although more expensive than many other colors, most vats are both chlorine- and light-fast. These latter properties make them extremely useful for coloring such steady selling items as men's work clothing, cotton prints and toweling. Few vat dyestuffs are used in the volatile, high-style fabric market.

Combination of these needs with the tremendous Government demand promises continuation of this trend for some time to come.

One product, Du Pont's Zelan waterproofing agent, is still short. Its scarcity is not due, however, to lack of production capacity; rather, it stems from lack of the needed raw materials, either pyridine or alpha-picoline.

Weakest: The performance of the sulfur colors has perhaps been the

* Dyestuff producers are required to keep huge inventories since it is the industry practice to ship all orders on 24 hours' notice. Thus, for a type of product where sales of 100,000 pounds per year are large, maintenance of a huge (relative to sales) inventory is a must. Another complicating factor is the huge number of products that must be kept on hand. One manufacturer alone stocks over 1,800 different dyestuffs plus a large number of textile assistants.

worst of all. Although they are inexpensive, sulfur colors are not bleach or light-stable and they are being replaced by the more colorful and fast vat dyestuffs.

That's where the industry finds itself today. But the upcoming year promises a change for the better.

U.S. producers fully expect the upturn in textiles to reach sizable proportions by spring: the upturn in certain products has already started.

But nearly all of them concede that even if demand for textile chemicals in the United States should ever again reach the level of a year ago, U.S. sales of textile chemicals would lag far behind. Reason: The German dyestuff industry has added some substance to the shadow of its former self and is again a very strong competitor in world markets. There they have the backing of a Government searching for means of increasing its foreign exchange, and the additional advantage that the bills do not have to be paid in hard-to-get dollars. Last, but probably not least, is the present greater availability of technical personnel in Germany for dyestuff manufacture.

"Bottle" Ammonia

Entry of the Suburban Propane Gas Corp., Whippany, N.J., into the field of distributing ammonia as a commercial fertilizer has brought new attention to this growing industry. This is particularly true since Suburban has announced it plans to institute the same "side-line" in its newly purchased subsidiary, Rulane Gas Co., Charlotte, N.C.

Since a successful method for applying ammonia directly to the soil was developed in 1947, several companies have gone into the business of distributing it in the South and Southwest. But the East and North lagged far behind until this year, when Suburban began limited operations in its area—which covers New Jersey, Maryland and Virginia—and Utilities Distribution Corp., Portland, Me., began operations in New England.

Logical Distributors: When the method for introducing the gas into the soil was developed, the problem of sales and distribution arose. Logically LP-gas companies, whose business is the sale and distribution of "bottled gas," would be in a good position to undertake the same functions for the bottled gaseous ammonia.

While ammonia cannot be packed in the same equipment that is used for LP-gas, the equipment necessary is quite similar, and the handling and general distribution are about the same.

The method of distribution employed by Suburban is essentially the same as that used for LP-gas. Ammonia is purchased from unaffiliated suppliers and shipped by special tank car or tank truck to bulk storage stations. It is then delivered to the farm either in portable storage tanks or by tank trucks to portable storage tanks already at the farm. Actual application is made by special units which pick up the gas from the storage tanks.

AMMONIA: Know-how in bottled gas brings promising side-line.

The gaseous ammonia is, naturally, in competition with dry fertilizers, but is expected to hold its own. Competition from other companies selling the ammonia is expected by Suburban, but as yet no other company in its area has started selling. When competition does begin, Suburban feels it has a jump both in time and experience from its LP-gas business.

Gas For Fertilizer: Prior to 1947, the application of ammonia to the soil as a fertilizer had been attempted many times, but with little success. Now it is used in some 23 states, mostly in the South and Southwest. Actual commercial use, as well as research, have tended to prove that ammonia fertilization results in substantial increases in the quality, size, and amount of certain crops. In addition it has definite fungicidal qualities.

This effectiveness stems primarily from the large (81%) nitrogen content of ammonia. But while nitrogen is the most important element of chemical fertilization, potash and phosphates are needed and must be supplied by additional dry fertilizers. It cannot be used alone.

The applicating units for ammonia fertilization consist of ordinary farm tractors with attached equipment. The special equipment includes a small storage tank, metering pump, and piping that leads to the trailing edge of sword-shaped blades that resemble row-type cultivator knives. The gas is injected into the soil at the bottom of furrows made by the knives, and a trailing device replaces the dirt in the furrows, sealing in the gas. The equipment, without tractor of course, costs about $450.

Present and Future: This year Suburban operated on a limited scale, with a total investment of only $350,000 in the ammonia business, and net sales of less than 1% of the total consolidated net gas sales. But the company expects considerable expansion of the business next year, intends to continue expansion throughout its distribution area as quickly as possible. At the moment ammonia is in somewhat tight supply since it is needed in the manufacture of explosives, but the long-range prospect shows no shortage.

The limited scale of the operation and the high cost of the necessary equipment made the initial distribution pattern one of custom service rather than direct supply to the user with his own equipment. In other words, Suburban supplied the gas, machines, and operators for a limited number of customers near its bulk stations. The company is confident, however, that the farmer will eventually buy the equipment, either from the company itself or from implement dealers, and its job will be one of simple distribution.

Cost Factor: Suburban and the other companies feel that they will be able to compete successfully with established dry fertilizers. Ammonia, they say, can deliver nitrogen to the soil at the same or a lower price. In addition, rainfall is not a factor, since rain is not needed to wash the fertilizer into the earth, and leaching and scalding are not a problem.

The high initial cost of the equipment will, the companies admit, be a deterrent to many farmers; but when the full value is known, the companies see the development of cooperative ownership of units and the rise of independent custom applicators, as already exists with other high-priced farm equipment. In addition, lower priced applicating units are now under development to help overcome this major stumbling block.

Second One Coming

Construction has now started on National Petro-Chemicals Corp.'s* new ethyl alcohol and ethyl chloride plant near Tuscola, Ill.

The new unit will be the second plant for which natural gas will be used to carry the hydrocarbon raw material in a pipeline from Texas to the plant. The first facility of this type, Mathieson Chemical Corp.'s, has just started operations at Doe Run, Ky.

The stripping plant, to remove 650,000 gallons per day of ethane and higher hydrocarbons from about 400 million cubic feet of gas, will be the first portion of the $32 million plant to be completed. But only the ethane will be raw material for the petrochemical unit; the higher "LPG" hydrocarbons are to be sold to Phillips Petroleum Co. for sale as bottled gas. First LPG sales are scheduled for October, 1952.

Chemicals by '53: The ethyl alcohol and ethyl chloride manufacturing units are not scheduled to be on stream until the spring of 1953. About 40 million gallons of alcohol and 50 million pounds of ethyl chloride are to be produced each year.

All of the product is sold on long-term contract. About half of the alcohol is to go to Du Pont, as well as all of the ethyl chloride. The rest of the alcohol is to be sold by National's subsidiary, U.S. Industrial Chemicals. USI now sells about 30 million gallons of alcohol per year, a third of which is purchased from Shell Chemical. It is expected that completion of this unit, together with the alcohol to be obtained from Carthage Hydrocol, will enable USI to cease production of ethyl alcohol from molasses.

The stripping and fractionating plants are to be built by J. F. Pritchard Co., the ethylene plant by the Lummus Co. and the ethyl alcohol plant by Vulcan Copper & Supply Co.

* National Petro-Chemicals is a 60 : 40 subsidiary of National Distillers Corp. and Panhandle Eastern Pipe Line Co.

Wildcat Crack-Down

If there is one thing union leaders and management leaders agree on, it's a strong disapproval of wildcat strikes. This was graphically illustrated recently when officials of the Federation of Glass, Ceramic and Silica Sandworkers of America (CIO) acted quickly to crack down on illegal strikes and other contract violations by their workers in Pittsburgh Plate Glass Co.'s T-window division.

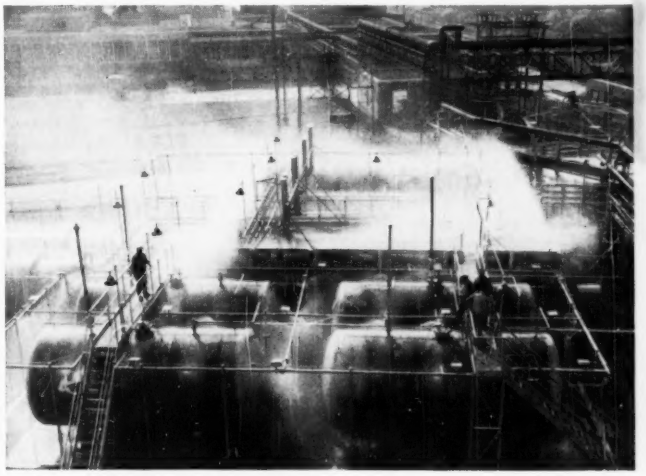
As unions grow larger the problem of wildcat stoppages becomes a serious threat to national union policy. In recent weeks the Ryan leadership in the East Coast longshoreman's union was in serious battle with wildcat strikers, and the national officers of CIO's Gas, Coke and Chemical Workers very reluctantly approved the threatened Sharp & Dohme strike *(CW, Dec. 1)* when rank and file indicated they would walk out whether the national approved or not.

In most cases the national leaders, faced with wildcatting, do everything they can to avert the strike, but usually refuse to actively oppose their rank and file if the stoppage occurs. This was not true in the case of the longshoremen, where the Ryan leadership was, in fact, the real target of the strikers; and now the CIO Glass Workers has adopted a policy of strong measures against its own members.

Union's Job: In essence what the Glassworkers have done is to assume the job of seeing to it that their members work at their top level of production. The union is guaranteeing "all-out productivity . . . to the benefit of all concerned."

Trouble started in Pittsburgh's plant when 100 men walked out in support of an employee suspended for failure to follow a foreman's instructions. The company served notice within 24 hours that the 100 were fired for taking part in an illegal strike. Within hours the union followed suit, proclaimed the strike illegal, and refused to condone it. In addition the union pledged its total support of contract obligations, and drew up a series of rules to regulate its members:

- Employees engaging in slowdowns or work stoppages would be fired with no redress to grievance procedure.
- Failure to obey supervisor's or-



Fire Fighting Fog

AUTOMATIC SPRINKLER EQUIPMENT pours half a gallon of water per sq. ft. per minute over all tank and line surfaces of the Goodyear Tire & Rubber Co.'s butadiene and styrene storage tanks in Akron. Recently installed for the company by Automatic Sprinkler Co., Youngstown, the fire fighting fog is set off either by a temperature rise in the tanks or by volatile vapors rising from a leak.

ders will be subject to immediate disciplinary action.

• Workers shall remain on the job for the entire shift, and there shall be no individual or collective limitation of production, except for agreed-upon rest or relief periods.

In return the company reinstated the 100 men, and granted an improved productivity schedule.

A Trend? While the division involved employs only 200 men, the company believes that the union action may mark a trend for larger plants. Certainly company officials, and most union leaders, would agree on the desirability of such a formula in all contractural relations, but serious doubts of its practicality must be considered.

In a normal union, operating on democratic principles, leaders must be careful of how many members they offend if they want to be reelected. Complete and arbitrary barring of wildcat stoppages would probably quickly result in alienation of the rank and file. As long as the rules are used against a small minority, serious trouble will probably not develop within the union; but when the same rules tend to obstruct the majority, the matter can be very different.

In the case of national unions with very large locals, the union will certainly step carefully before cracking down on a wildcatting local. This is particularly true where an industry is organized by two or more competing unions. The danger of losing a local by taking sides against it would presumably weigh on national leaders.

There is little doubt, however, that both unions and industry will study the Glassworkers' formula, keep an eye on it in practice.

Logic Triumphs

Despite the opposition of Interior Secretary Chapman and the Justice Department, DPA administrator Fleischmann has ruled that the proposal of Anaconda Copper Co. and Harvey Machine Co. to erect a 72,000 ton per year primary aluminum plant be accepted.

To be erected at Kalispell, Mont., the three potline plant has received a certificate of necessity for 85% of the total investment of $94.7 million. Power is to be supplied by Bonneville Power Administration from the newly built Hungry Horse dam.

With this grant this long-disputed aluminum reduction works *(CW, Dec. 1)* has at last received the green light; and first production from the new plant is expected within a year.

OAP's BAYNTON and SENATOR WILEY: Quiz show coming up.

OAP: Probe and Prospectus

Perhaps spurred by the impending investigation of the Justice Department's Office of Alien Property, OAP's director, Harold Baynton, said in an interview with CW that the last intra-departmental barrier to the sale of Schering Corp. had been lifted.

Schering, which has been "about to be sold" for 4 years, will, Baynton reports, be sold "as fast as we can put together" the prospectus. The final decision—on the company's patent holdings—was made last week, but Baynton declines to reveal what it was.

Basically, the problem is this: If a patent owned by a German national was vested (seized) during the war, it is freely available for any citizen to use on payment of a $15 service fee. But if a corporation—like Schering—is vested, should its patents, as property of an enemy corporation, also be available to any citizen, or should they remain solely company assets?

While Baynton is keeping mum on what OAP will do, feeling in industry is that Schering's patents will remain its property since they bulk large in the company's demonstrable assets.

Big Three: Schering, with assets of $13.5 million, is second only to General Aniline & Film ($125 million) as a jewel in OAP's property crown. GAF's distributor, General Dyestuffs, comes third with $10 million. Six other chemical firms are held by OAP, but their assets are minor compared to these three.

Of the trio, Schering is the only one which can be sold at present, since it is not tied up in litigation. Both GAF and GDC are well snarled *(CW, Oct. 27)*. In fact, it was the GDC case which started Wisconsin Senator Alexander Wiley's investigation into OAP's affairs. He offered a rider to a Congressional resolution which would have allowed heirs of the late Ernest Halbach to reopen their fight to obtain posession of GDC. This amendment was beaten, but Wiley has introduced a separate bill to accomplish the same purpose. Since the start of the Congressional recess, Wiley has been laying the groundwork for a full-scale investigation by asking OAP questions on its ten largest holdings—apparently to aid his bill.

Mink Coats? It's doubtful that Wiley will garner the mink coat-Deep Freeze headlines that the RFC and Revenue investigations have brought out. He will rediscover, however, that many jobs in OAP's companies have gone to Democratic party faithfuls or contributors. This OAP admits, but points out that somebody has to do the work; the absence of Republicans in top management is just "practical politics"; Republicans would have done the same thing if they had the chance.

Jack Frye, GAF and GDC president, will be one of Wiley's targets. He received $97,000 last year in his dual executive role. Frye, former president of TWA, has been a generous contributor to Democratic coffers.

Francis C. Brown, president of Schering since 1942, received $55,731 salary during 1950. He formerly helped manage alien property for the Government.

Steptoe & Johnson, of which Louis Johnson, former Democratic party treasurer, is a partner, received $263,000 in legal fees fom GAF and GDC between 1948 and 1950.

Salaries paid to Frye and to Brown are not abnormal by industry standards; and by the same token, many companies pay their attorneys comparable fees. The question Wiley may pose is whether the performance is worth the money. But if this is to be the basis for holding down jobs in OAP firms, then Wiley will have to bring charges of inefficiency against the firms' officials.

This will be difficult to prove, for the companies have prospered since their seizure, as, of course, has the industry in general. Present asset value of the three is approximately double what is was at the moment they were vested, and this despite severe limitations on operation: The companies can raise new capital only by debt financing or by withholding dividends; long-range programs which future management might not approve cannot be started.

GAF, under American management, has continued its development work with dyes and dyeing, and on acetylene derivatives, among others. One of Schering's recent innovations is Dormison, non-habit forming sleep-promoting pill (*CW, Sept. 22*). Coricidin and Inhiston are Schering products. Its researchers are prominent in the antihistamine field, cortisone and other hormone investigations.

Sale Prospects: Neither company is a wallflower as far as prospective buyers are concerned. Remington Rand has been courting GAF for some time. Several major chemical makers have also been tagged as interested, as have financier Victor Emmanuel and lawyer Louis Johnson. Schering would be a welcome addition to almost any large pharmaceutical house.

The Office of Alien Property, a part of big Government which has been managing big business, would naturally be a target for influence peddlers and influence seekers. Whether undue or improper influence has been exerted can be brought out only by a non-partisan investigation. The moot question: Will Wiley's probe meet this fundamental requisite?

Rayon Shakeup

The recent reorganization of Du Pont's Rayon Department has left little of the old system intact. Even the name has been changed to the Textile Fibers Department.

Pressed by expanding production and growing production lines, particularly for new fibers, Du Pont management decided it was time to do something about the obsolescent set-up in the Rayon Department. Sweeping changes were deemed necessary to meet the functional requirements of efficiency, a maximum of integration of effort, and the versatility necessary in an organization of expanding product lines.

Two for Six: In the old Rayon Department, the set-up was complicated and not particularly functional. There were three divisions – Nylon, Rayon, and Acetate–each with its own sales and production departments, or six in all. Into this came the new fibers, Orlon acrylic fiber and Dacron polyester fiber.

Now the new Textile Fibers Department will have one sales department and one production department to handle all five fibers. Within each division of the department, each particular fiber will be the responsibility of a manager for manufacturing or a director of sales.

The result is a much stronger consolidation of experience and ability. Duplication of effort is eliminated, and the sales and manufacturing teams can work together and pool their knowledge. Instead of six men reporting to the department head, only two will do so, cutting down on time.

Integration: Main gain from the new set-up, in Du Pont's eyes, is the greater integration of manufacturing and sales. The vertical system is considered superior to the former horizontal one for functional requirements.

At present no changes are expected in the lower levels of management in the manufacturing division, and none in the district sales offices.

Refinery for Britain

INDIAN LABOR lends an oriental touch to this Anglo-Iranian Oil Co. refinery now being built on the Isle of Grain in Kent. Begun in the summer of 1950, the new refinery is scheduled for completion during 1953. It will be capable of processing 4 million tons of Middle East crude oil annually.

Land vs. Water

Plans are underway to overcome the biggest obstacle in the path of building pulp mills in Alaska: the cost of transporting the pulp to its markets in the continental United States.

Now that Ketchikan Pulp & Paper Co. is going ahead with its plans for constructing a mill near Ketchikan, transportation interests are busily working ot the most economical routes to market.

Leading plan at the moment appears to be the one calling for ferrying loaded railway cars from Ketchikan to Prince Rupert, some 100 miles south, where the Canadian National Railways has a railhead. The second plan under consideration involves water shipment to Seattle, Wash., 650 miles away, for delivery to the East via northern transcontinental railways.

The big question right now is whether the interests presenting the latter route can compete in price with the shorter water haul into Prince Rupert.

Selling by Showing

STOCK SALES have boomed for Chemical Fund in brokerage offices where this new display has been shown. The exhibit emphasizes the diversification within the chemical industry, showing typical product uses in medicine, agriculture, textiles, home, industry and transportation. The display was credited by Hornblower & Weeks, Chicago stock broker, with increasing Fund sales by almost 150%.

Steel and Then . . .?

The big question this week in labor-management circles is: Will the War Stabilization Board survive the steel dispute and all the "unfinished business" on its present agenda?

This is far more than an academic question, for today labor-management bargaining is moving more and more away from the company-union negotiation table to WSB. If you want to know what's going to happen in the chemical industry, you've got to watch WSB decisions.

Right now the steel squabble is staring the Board in the face; and what happens will largely set the pattern for all industry in the coming year.

As Wilfred H. Winans, vice president in charge of industrial relations at Union Carbide and Carbon Corp., pointed out at the recent MCA meeting, demands of the steel workers are essentially the same as those anticipated in the chemical industry.

Negotiations in Pittsburgh are apparently hopeless; Murray says a strike seems unavoidable; the companies are hewing to a firm policy of no raise without a price increase. Under these circumstances, mediation in Washington appears doomed to failure.

If this happens, and the strike comes off on January 1 as promised, WSB is going to have a hot potato on its hands.

Any day now the Board will come out with its policy on health, welfare and pension plans, and recommendations of the Board's study committee appear to amount to decontrol on these issues. After that the Board is faced with a long list of new and revised policies to act on, provided it gets past the impending steel case.

The Trouble: One of the major troubles with WSB is that there is no limit on what it can approve in wage increases. "Ceilings" refer only to what wages can be given without WSB approval. WSB has the authority to approve any increase it considers necessary to carry out the objectives of the Defense Production Act. Labor has taken the initiative, has often presented a negotiated contract as a *fait accompli* for WSB's approval on the grounds that the government shouldn't break the bargain between union and industry. So far this is not WSB policy, but it is getting close to it.

Problems: CIO members have drawn up a list of problems they think need attention, and the order in which they need it. Public members have done the same. Essentially, the lists are alike, although the order is different. After health, welfare, and pensions—and after steel is safely out of the way—industry can look for these things to crop up in WSB rulings:

- Productivity increases: Number 1 on labor's list, and pretty sure to be approved in some form or other.
- Severance pay: No set policy of War Labor Board's to go by.
- Substandard wages: WSB has okayed up to 95¢-an-hour for farm labor without approval; CIO wants $1.25 to be automatic.
- Commission earnings: Study committee has already reported.
- Small employer exemption: CIO wants to exempt employers of less than 10.
- Revision of Reg. 13 on fringe benefits: Considering making it self-administering according to industry or area practice; CIO wants a definite national standard.
- Price-exempt industries: Committee has recommended continuing wage controls in industries where rates are regulated or prices controlled or where wage rises might have contagious effect; CIO wants no wage controls where there are no price controls.
- Shorter week: No announced policy; except that in the CIO Maritime case the Board held it was not a wage increase to begin paying premium overtime after 40 instead of 48 hours. CIO thinks WSB should approve 40-hour week for all industry.

EXPANSION . . . .

Superphosphate Fertilizer: Activated Fertilizer Corp. has begun construction of a $100,000 plant at Spokane, Wash., to manufacture superphosphate soil fertilizer. It is believed to be the first plant of its type in the area.

•

Ammonia: Pennsylvania Salt Manufacturing Co. will switch from the previously employed Mont Cenis-type low-pressure ammonia synthesis to the high-pressure Claude process in its new plant at Wyandotte, Mich. To utilize hydrogen from the firm's chlorine cells, the new unit will cost $2.2 million and is to be constructed by Foster-Wheeler Corp. Completion is scheduled for early 1953.

•

Dicalcium Phosphate: Three million dollars is the expected cost for a dicalcium phosphate plant to be erected by Shea Chemical Co. at Goodwin, Tenn. Shea has just received a charter of incorporation in the State of Tennessee.

•

Rare Earth Metals: The $160,000 expansion project of Cerium Metals

SEWAGE LOSES: Salt still flows from San Jose bottom land as Leslie Salt Co. beats condemnation.

Salt Wins

The attempts of West Coast communities to acquire bottom land, now owned by chemical companies producing salt and similar chemicals, for use in sewage disposal projects, suffered a sharp set-back last week. Occasion: The ruling of a West Coast judge in favor of Leslie Salt Co. in its struggle with the city of San Jose. (CW, Nov. 3)

The city had instituted condemnation proceedings on 1,865 acres of Leslie Salt's salt-producing land in the bay area. Half of Leslie's output goes to West Coast chemical companies—Hooker, Dow, Pennsalt and others—who can rest a little easier now that their salt supply is at least temporarily safe.

Without Prejudice: The verdict was directed and without prejudice, which means that the city can start all over again if it wants to, but this is highly unlikely without a radical change in the city's plans. The advisory jury sitting on the case was dismissed after declaring itself hopelessly hung, and the lawyers for both sides were given eleven days to prepare final arguments on the points of law involved. After hearing the arguments, the judge ruled for the salt company.

Unconvinced: The court's decision rested mainly on the failure of the city to convince the court that condemnation of so large an area was necessary for efficient and healthy sewage disposal. It might work very well, but it wasn't necessary.

Furthermore, Leslie succeeded in building up grave doubts in the court's mind that the action of the city in condemning the land would be compatible with the traditional doctrine of "the greatest public good and the least private harm."

The experimental nature of the city's plan, involving enormous oxidation ponds covering 2,400 acres—larger than ever used before—was the target of adverse comment from the bench. Judge Del Mutolo said he did not believe electorate approval of the $3.9 million bond two years ago was for an "experiment."

Technical Evidence: A man who assembled part of the technical evidence for court use stated that "Judge Del Mutolo's decision confirms the judgment of the many engineers who testified that the costs of the proposed oxidation ponds would be several times higher than estimated; that the ponds would be a continuing source of nuisance; and that conventional practices of domestic sewage and industrial waste treatment should be used in the San Jose area."

The salt company feels that there are no grounds for the city to appeal. At the moment, the decision promises opportunity for the continued growth of the local solar salt industry.

Corp. at Niagara Falls, N. Y. for production of rare earth metals is nearing completion. The company has received a 65% certificate of necessity for this plant.

•

Asbestos: Asbestos Corp. will spend between $9 and $10 million on its asbestos mining property at Quebec City, Que., according to Quebec's premier Duplessis. The expanded plant is expected to produce about 5,000 tons of asbestos per day.

•

Formaldehyde and Pentaerythritol: St. Maurice Chemicals, Ltd., is the name selected for the joint subsidiary of Heyden Chemical Co. and Shawinigan Chemicals Ltd. that has been formed to manufacture 30 million pounds of formaldehyde and 3 million pounds of pentaerythritol per year. To cost $2 million, the plant will be located at Varennes, Que., and construction is scheduled to start in the spring.

•

Cellulose Sponges: Burgess Cellulose Co. has opened a pilot plant for production of cellulose sponges at Prairie du Chien, Wis. The site and buildings for the new unit were obtained from Prairie du Chien Woolen Co.

COMPANIES. . . .

Owens-Corning Fiberglas Corp.: A plan is being considered by the directors of Owens-Corning Fiberglas Corp. for an additional common stock issue. Such an issue would allow the public to invest for the first time.

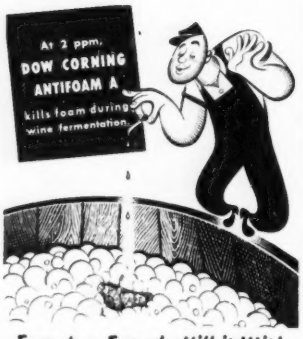
At present stock in the company is divided 42% each between Owens-Illinois Glass Co. and Corning Glass Works. The remaining 16% is held by officials of Owens-Corning Fiberglas.

•

Hooker Electrochemical Co. Credits have been arranged with four banks for $11 million by Hooker Electrochemical. The company has already taken $3.6 million under the arrangement for plant expansion and other corporate purposes. Banks participating in the arrangement: Chase National Bank, New York Trust Co., Marine Trust Co., and Bank of California N. A.

•

Dow Chemical Co.: A price of $82.50 per share has been set by Dow Chemical Co. on its upcoming offer of 180,000 shares of common stock to its employees and stockholders. Present



Foam's a Fraud...Kill it With

DOW CORNING ANTIFOAM A

To get the most out of your process equipment, add a trace of Dow Corning Antifoam A and use the space you've been wasting on foam. You'll process most of your most violent foamers, even under vacuum or continuous heat, without waste or hazardous overflow.

That's because Dow Corning Antifoam A kills foam faster and in a wider variety of foamers than any other material known. Practically odorless, tasteless and non-toxic, it is safe to use in food and drugs at concentrations up to 10 parts per million—many times the concentrations normally required.

That kind of efficiency makes Dow Corning Antifoam A the most economical as well as the most versatile defoamer available.

See for Yourself

Send Coupon Today for Your FREE SAMPLE

DOW CORNING SILICONES

Dow Corning Corporation,
Dept BS-12
Midla...a Mi.higan

Please send full information and a free sample of Dow Corning Antifoam A.

Name_____
Company_____
Address_____
City_____ Zone____ State_____

DOW CORNING CORPORATION
MIDLAND, MICHIGAN

ATLANTA • CHICAGO • CLEVELAND • DALLAS • LOS ANGELES
NEW YORK • WASHINGTON, D. C.

BUSINESS & INDUSTRY . . . . . .

wage and salary stabilization regulations would force a higher ante if the price should go above $117.50. The price of Dow common recently has been about $115 per share.

•

Southern Oxygen Co.: Sale of debentures will be used by Southern Oxygen Co. to raise $1.4 million. The money will be used to repay short-term loans and to provide additional working capital. The underwriting group is headed by Johnston, Lemon & Co.

•

Caustic Soda: Dow Chemical Co. has opened a new caustic soda storage facility for 50% solution at the Los Angeles Harbor Terminal. The new unit will distribute caustic from Dow's Pittsburg, Calif., plant.

FOREIGN. . . . .

Oil Catalysts: Year's end will see beginning operations of Britain's newest oil cracking catalyst plant at Warrington, a joint venture financed by Joseph Crosfield & Sons (an associate company in the Unilever group), Davison Chemical Co. in the U.S., and the following five oil companies: Anglo-Iranian, Esso Petroleum, Shell Refining & Marketing, Trinidad Leaseholds, and Bahrein Petroleum.

Costing $2.8 million, the new plant will supply oil cracking catalyst to the five companies in connection with their sterling area refinery expansion program.

A similar venture is being planned for the Continent where Koninklijke Zwavelzuurfabrieken ("Ketjen"), the Amsterdam chemical concern, has been licensed to manufacture American Cyanamid Co.'s microspheroidal cracking catalysts for sale to Western European oil refiners.

Production of these catalysts is expected to begin early in 1953 and will be on a sufficient scale to handle an annual refining capacity of more than 56 million barrels of crude oil.

•

Cortisone: Brazil may become an important source of cortisone raw materials if research on Brazilian yams just begun by the U.S. Dept. of Agriculture proves favorable. The yams are much like those already being used to produce the drug on a commercial scale in Mexico.

•

Farm Supplies: Paraguay has just gotten a $5 million loan from the International Bank for Reconstruction and Development to help increase agricultural production—the country's chief economic activity. Among the supplies that will be purchased with funds from the loan are fertilizers, insecticides, and veterinary vaccines and medicines.

•

Streptomycin: Schenley Laboratories, Inc., will help construct a streptomycin plant in Copenhagen, for Novo Terapeutisk Laboratorium A/S, one of Denmark's major penicillin and insulin producers. According to the agreement signed by the two companies, Schenley will supply engineering know-how and assistance in return for royalties on Novo's streptomycin production plus an option to introduce Novo products and production techniques in the U.S.

KEY CHANGES . .

Timothy A. Lynch: From acting director to director, aluminum and magnesium division, NPA.

Malcom P. Murdock: From manager, central sales region, to general sales manager, Ethyl Corp.

J. Fred Dudley: From manager, central division, production department, to chief engineer, Commercial Solvents Corp.

Ralph S. Lamie: To director, J. T. Baker Chemical Co.

Anthony J. Ratichek: To director, J. T. Baker Chemical Co.

Harry L. Pelzer: To director, Sinclair Research Laboratories, Inc.

Edward J. Detgen: From sales manager, building materials division, to sales manager, general products division, Owens-Corning Fiberglas Corp.

Patrick H. Gorman: From advertising manager, Philip Morris & Co., Ltd., to assistant to the president, Vick Chemical Co.

E. F. Elbin: To district manager, southwest territory, chemical division, Celanese Corp.

Frank S. Ward: From industrial sales manager to general sales manager, Taylor Instrument Co.

A. Lloyd Taylor: From research supervisor, Wyandotte Chemicals Corp., to director of research, MacDermid Western, Inc.

Henry O. Hervis: From Quality Industries (New York) to director of product development, d-Con Co. (Chicago).

Farrington Daniels: President-elect of the American Chemical Society. He is professor of chemistry, University of Wisconsin.

Eliminate Rancidity!

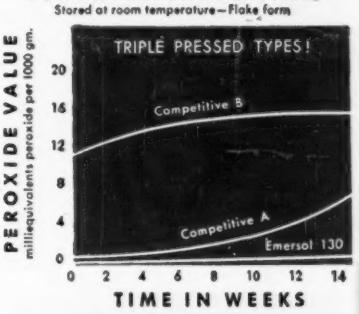
with

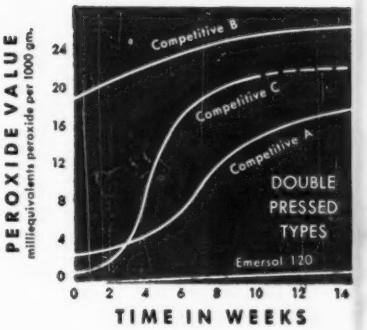
OXIDATION-RESISTANT Emersol Stearic Acids

PEROXIDE VALUE* TESTS SHOW AMAZING STABILITY OF EMERSOL STEARIC ACIDS!

Don't take chances with just any stearic acid . . . get an Emersol Stearic Acid and insure highest possible stability, as shown first by oxygen absorption tests, which proved them to be (depending on grades) from 2-5 times more resistant than competitive types. And now peroxide value tests during aging, again illustrate their superior resistance to oxidation, which means superior resistance to rancidity.

PEROXIDE VALUE DATA
Stored at room temperature—Flake form





Emersol Stearic and Palmitic Acids Make Quality Products Even Finer!

Remember . . . the stability of your products depends largely upon the stability of the fatty acids used! Join the changeover and be sure your products exhibit the highest resistance to color, odor and oxidation degradation at no extra cost. Buy Emersol Stearic and Palmitic Acids and be sure that your products have that fresh, natural appeal, and that they keep it longer!

*Peroxide Value indicates the quantities of peroxides, which are present in fatty products as the result of oxidation reactions. Therefore, lower peroxide values indicate greater resistance to oxidation.

Emery Fatty Acids

EMERY INDUSTRIES, INC.
Carew Tower, Cincinnati 2, Ohio

Branch Offices:
3002 Woolworth Bldg., New York, N. Y.
221 N. La Salle St., Chicago 1, Ill.
401 N. Broad St., Philadelphia 8, Pa.
420 Market St., San Francisco 11, Calif.
187 Perry St., Lowell, Mass.
Export: 5035 RCA Bldg., New York 20, N.Y.

Warehouse stocks also in St. Louis, Buffalo, Baltimore and Los Angeles

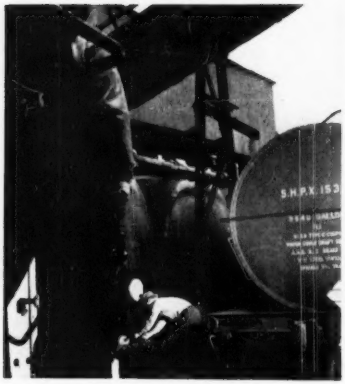
Representatives:
Schibley & Ossman, Inc., 33 Public Square, Cleveland 13, Ohio
Ecclestone Chemical Co., 2673 Guoin, Detroit 7, Michigan

GET ALL THE FACTS ABOUT EMERY'S SOLID FATTY ACIDS!

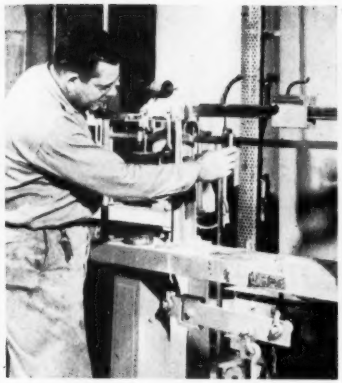
Emery Industries, Inc.
Dept. CW-12 • Carew Tower, Cincinnati 2, Ohio

Gentlemen: Please send me the comprehensive bulletin on Emery's Solid Fatty Acids.

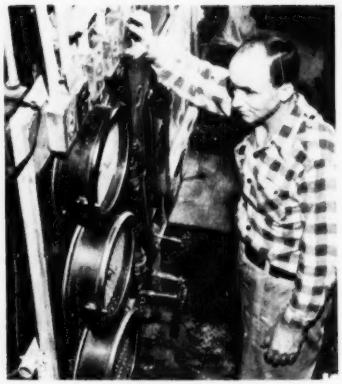
Name.....
Title.....
Company.....
Address.....
City.....*Zone*.....*State*.....



1 CAUSTIC, acetaldehyde arrive in tank cars; formaldehyde is captive.



SCALE-TANK is used to weigh in liquid reactants. Big advantage: accuracy.



OPERATOR checks temperature; reaction is exothermic, temperature is critical.

PRODUCTION . . . . . .

Defense Needs Boost Penta Production

PLANT MANAGER Brad Whittier (right) gets early morning report from Ed Herrick (area superintendent).

Like other makers of pentaerythritol, Heyden Chemical found itself hard put to meet heavy military and civilian demands for the product, decided to do something about it. What it did was launch an expansion program that will probably cost over a million dollars. But it will boost capacity of its Pentek pentaerythritol by 20% to 30%. It should keep Heyden top producer in an industry that now has an estimated capacity of 60 million lbs. a year.

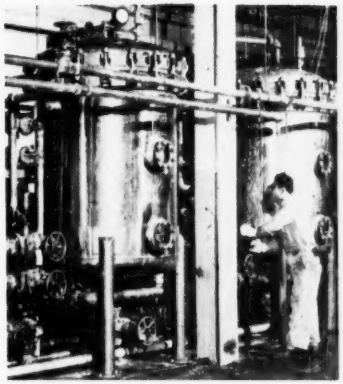
This week, the CW camera visited the site of Heyden's expansion program—at Garfield, N.J.—with a double purpose: to see how pentaerythritol is made and to check the progress of the expansion.

The CW camera found the expansion about 75% complete. It saw the process and the important part that control—process and product—plays in the finished material.

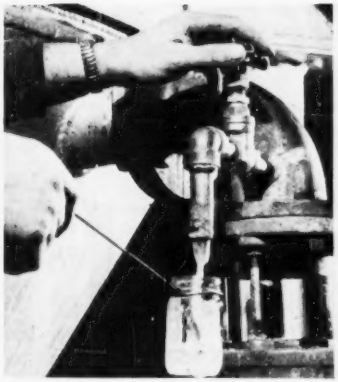
5 PENTA CRYSTALLIZES out in new battery of centrifuges, is then . . .

DROPPED TO ROTARY drier, last step in the actual processing.

EACH BAG is sampled and each pellet and batch composited for quality control.

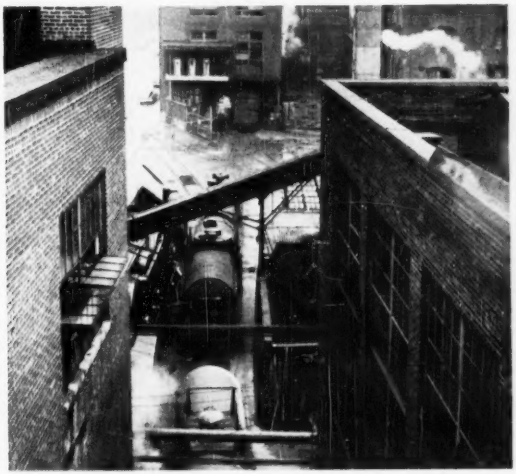


2 EXCESS CAUSTIC is neutralized, solution is filtered in Niagaras.

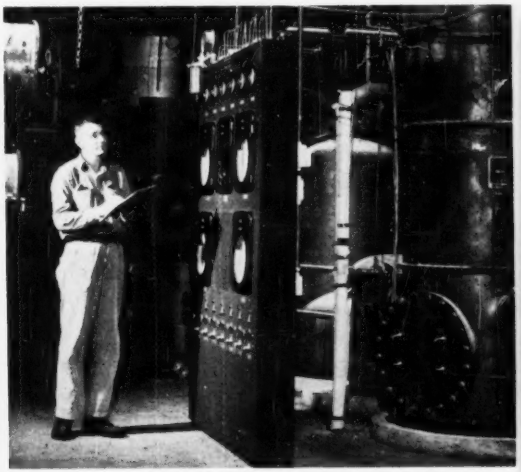


FILTRATE SAMPLE is taken to find if carbon—added earlier—is coming through.

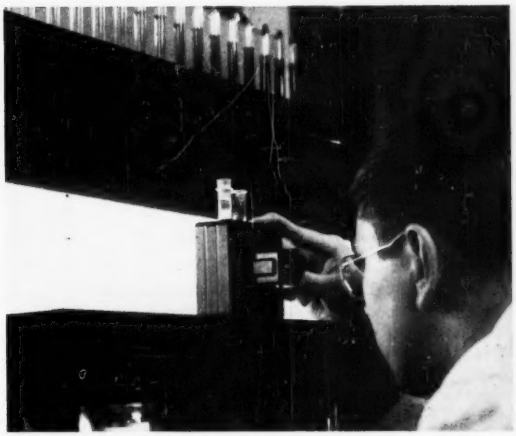
SMILES mean filter paper is clean, Niagara filters don't need cleaning.



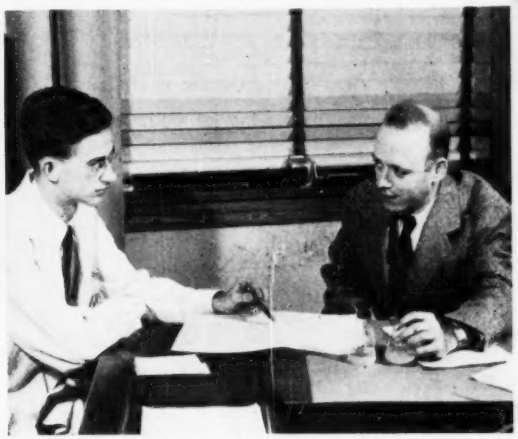
3 LIQUIDS ARE PUMPED to building in background which Heyden built with an eye to expansion.



4 DEPARTMENT SUPERVISOR Jim Rattray checks concentration, first step in new building.



6 COLOR TEST is important phase of quality control, but each batch must pass five or six other tests.



7 GOOD OR BAD? Joe Lichtenberger (right) chief chemist, control, and Bob Yale, lab supervisor, talk it over.

DO YOU NEED A DEPENDABLE SOURCE OF

Formaldehyde?

Look to CELANESE* N. F. FORMALDEHYDE

Here's why it gives you top quality at lower cost:

- Celanese is one of the largest producers of Formaldehyde in the world.
- Production is by oxidation method—using natural gases as raw material.
- Production not dependent on supplies of Methanol.
- Celanese distribution service—by tanker, tank car, tank truck, or drum
- Terminals and distribution points in strategic locations assure prompt deliveries.
- Nationwide distributor service also means prompt handling of your less-than-carload requirements.

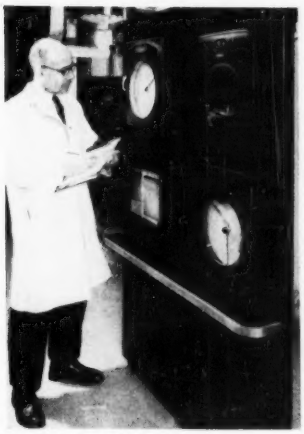
Celanese* CHEMICALS

*Reg. U.S. Pat. Off.

REVISED FORMALDEHYDE TECHNICAL MANUAL

Write now for the revised technical manual on Formaldehyde —37 pages of detailed information, including a special 4-page section on Formcel* (Formaldehyde-alcohol solutions). Celanese Corporation of America, Chemical Division, Dept. 502-L, 180 Madison Avenue, New York 16, New York.

ACETIC ACID • ACETALDEHYDE • FORMALDEHYDE • PARAFORMALDEHYDE • ACETONE • BUTYL ALCOHOLS • METHANOL
NORMAL PROPANOL • BUTYLENE GLYCOLS • DIPROPYLENE GLYCOL • PROPYLENE GLYCOL • PROPYLENE OXIDE • TRICRESYL PHOSPHATES



CONTROL PANEL: Continuous recorders for a one-man plant.

Packaged Plant

A new packaged unit has gone on stream at S. F. Lawrason and Co.'s plant in London, Ont. Using a continuous vacuum distillation, it is producing fatty acids from hydrolyzed animal and vegetable fats from which glycerine has been separated. It can be operated by one man, has a throughput and design features that should appeal to small or average size producers.

The unit was designed by James P. O'Donnell, Engineers,* through its Canadian affiliate, Petro-Chemical Construction Co., Ltd., as contracting agent and Marshall-Moorman Development Co. (New York City) as process consultants. In designing the unit, the engineering firm kept two ideas in mind: an equipment layout which would occupy a minimum amount of space, and special design to lower field construction costs.

Limit on Weight: One way that construction costs were minimized was by setting a low maximum weight for any single component so that it could be transported by truck if necessary. Because of high efficiency and low pressure drop, Koch Kascade trays (*CIW, Feb. 17*) were specified. But they also eliminate the need for special hoists and handling space above the tower since they are designed so that each tray can be installed or removed as a single unit in the field.

Another way that field erection was simplified—and costs reduced—was by prefabrication of parts wherever possible. Special flanged vapor connections, for the reboiler and the product condenser, for instance, were shop-welded to the distillation tower before shipment. When put up in the field, they were merely placed on supports and bolted to the mating flanges of the tower vapor connections. And the top of the tower was built with a removable flanged cover to which the internal feed pre-heat coil was prefabricated. Besides simplifying field construction, the removable tower cover makes maintenance easier.

Flexible: The unit can be used to obtain light-colored distilled products and fractionated products of high purity. When used for removal of color bodies, it has a charging rate of 1,000 lbs. per hour; for fractionating specialty cuts, the feed rate will be lower, depending on the composition of the charge and degree of fractionation desired. Flexibility in the amount of fractionation is provided by a choice of three feed points.

Liquid from the bottom is trapped out to a thermal-syphon type reboiler for heating by a Dowtherm heat exchange fluid. Although the distillation tower is designed for operation at 5 mm. of mercury (absolute) at the top of the tower, pressures as low as 2 mm. have been attained in practice.

Bottoms are collected in a specially designed stripping section suspended from the bottom of the distillation tower. Steam for stripping is introduced at the bottom of the stripping section; additional heat can be provided by a jacket that surrounds the section and is heated by a Dowtherm heat exchange fluid. The two sources of stripping heat make for additional flexibility.

Automatic: One of the big features of the unit—operation by one man—is attained by a centrally located control panel. Process variables that are continuously recorded on it:

- Temperatures of tower top vapor, overhead product leaving the separator, reboiler vapor entering the tower, feed temperature after pre-heat, Dowtherm fluid entering reboiler, and cooling water entering product condenser.
- Quantity of feed to unit.
- Vacuum at tower top.

All in Stainless: Because most of the feeds are corrosive, the distillation tower was built of Type 316 stainless steel. All other equipment coming in contact with the process streams is also made of stainless; special gaskets are used in the process pumps.

Cost for the complete unit was less than $10,000 for each ton per day of feed. That was based on a daily charging rate of 12 tons; units designed for higher feed rates would have a correspondingly lower cost per ton day.

* Formerly Project Engineering Co.

Keeps It Hot

FACED WITH THE NEED for another reactor, Sol Boyk, owner and research head for Ottawa Chemical Co., pressed an unjacketed glass-lined receiver into service. To heat it, he fed steam through copper tubing wrapped around the receiver, but found that after 36 hours the reaction temperature was only 65 C. His solution: four thicknesses of Owens-Corning Fiberglas' Aerocor insulator. From his makeshift reactor, Boyk reports that he is able to get temperatures up to 105 C—without excessive room heating.

EQUIPMENT . . .

Copper-Clad Steel: A process for cladding steel—either mild or stainless—has been developed by W. L. Ulmer of the Automatic Gasflux Co. and the Superior Flux and Manufacturing Co. of Cleveland. Ulmer says the product combines the strength of steel and the corrosion resistance of copper, should be an important step in stretching present supplies of copper. He claims that his process is far superior to present commercial methods because it is capable of turning out large sheets and plates.

Secret to the process is Ulmer's Gasflux volatile liquid, developed some time ago. The slab or plate to be bonded is first cleaned thoroughly and a fence welded around the edge, slightly higher than the layer of copper to be applied. The slab is then heated to 1,000 F and treated with the flux to counteract oxides which form when the metal is heated. Molten copper is then poured onto the surface up to the level of the welded fence, heated to 2,000 F. In the second heating, the flux provides the microscopic "wet" between the copper and steel which assure bonding the two into a bimetal. Bimetals

BICARBONATE of SODA
MONOHYDRATE of SODA
SAL SODA

STANDARD QUALITY

CHURCH & DWIGHT CO., INC.

Established 1846

70 PINE STREET **NEW YORK 5, N.Y.**

Chemical Fund Inc.

A MUTUAL INVESTMENT FUND

F. EBERSTADT & CO. INC.

39 Broadway New York 6, N.Y.

Send me a Prospectus describing the Company and its Shares

NAME_____

ADDRESS_____

CITY_____ CW

DOUBLE BARREL

ADVERTISING

Advertising men agree—to do a complete advertising job you need the double effect of both Display Advertising and Direct Mail.

Display Advertising keeps your name before the public and builds prestige.

Direct Mail supplements your Display Advertising. It pin-points your message right to the executive you want to reach —the person who buys or influences the purchases.

In view of present day difficulties in maintaining your own mailing lists, our efficient personalized service is particularly important in securing the comprehensive market coverage you need and want.

Ask for more detailed information today. You'll be surprised at the low overall cost and the tested effectiveness of these hand-picked selections.

for Results

use Mc GRAW-HILL DIRECT MAIL LIST SERVICE

McGraw-Hill Publishing Co., Inc.

330 West 42nd St., New York 18, N. Y.

PRODUCTION . . . .

containing 10% copper and higher can be made by the process.

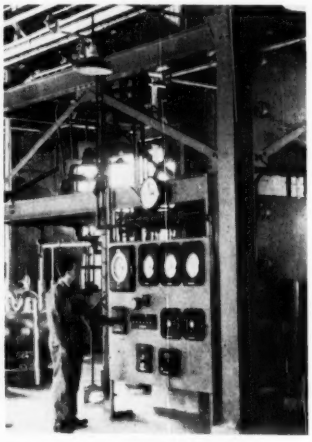
The process will not work with aluminum, has not been tried on iron or steel castings; but it has proved excellent as a heat dispersal agent on stainless.

•

Continuous Measuring: Industrial Nucleonics has brought out a continuous measuring gauge to determine the square-yard weight of sheet material made in the process industries. A beta radiation source is placed below the sheet to be measured; a detector placed above the sheet measures the amount of radiation that penetrates the sheet, feeds the information to a recorder which gives a direct reading of weight per unit area. Advantages claimed: materials saving, elimination of sampling, and improved quality control. Accuracy is within 1%.

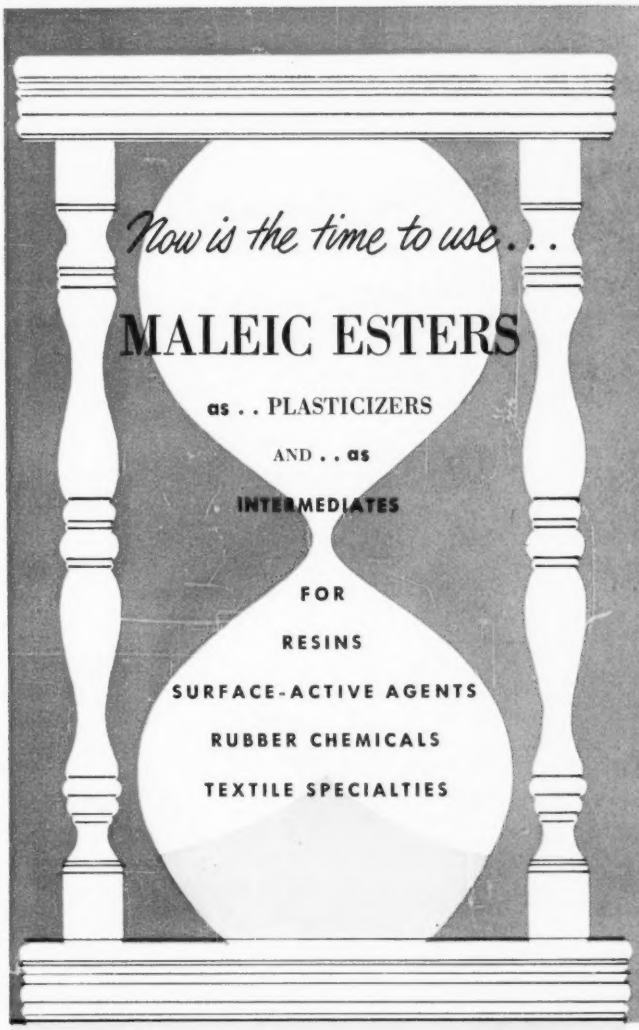
•

Plate Exchanger: Walker-Wallace has added a Model HF to its standard line of APV plate heat exchangers. Suitable for handling liquids under pressures as high as 120 psi. and liquids with small particles in suspension, the exchanger is being made in England. It has high capacity (flows up to 400,000 lbs. per hour) and has high heat-transfer rates.



Up from Bath Tubs

THE NEW unit process plant which J. T. Baker Chemical Co. has built to produce a variety of high-purity inorganic chemicals is a far cry from the time-honored "bath tub" crystallizing tanks that long have been the hallmark of the industry. Located at Phillipsburg, N. J., the new unit is constructed of a variety of corrosion-resistant materials; uses continuous crystallization (behind the instrument panel).



RESINS that range from soft and flexible to hard and brittle materials can be produced by copolymerizing maleic esters with vinyl chloride, vinyl acetate, acrylonitrile, vinylidene chloride, or isopropenyl acetate. Maleic ester resins can be made for:

- plastic films and sheets
- electrical insulation
- molding compounds
- binders
- coatings
- impregnating compounds

PLASTICIZERS: Maleic esters of higher alcohols are of interest as plasticizers for use with vinyl resins and cellulose esters.

SURFACE-ACTIVE AGENTS: Sodium bisulfite added to the double bond of higher alkyl maleates yields valuable surface-active agents.

For further information or samples, call or write the nearest Carbide and Carbon Chemicals office today. Ask for the technical bulletin "Maleic Esters," Form-7354. Inquiries for other esters of maleic, succinic, and fumaric acids are invited. Samples of many of these esters are available.

	DIETHYL MALEATE	DIBUTYL MALEATE	DI(2-ETHYLHEXYL) MALEATE
Molecular Weight	172.18	222.28	340.49
Specific Gravity at 20/20°C.	1.0703	0.9964	0.9436
Boiling Point at 760 mm. Hg, °C.	222.4	280.6	209(10mm.)
Vapor Pressure at 20°C., mm. Hg.	0.01	0.01	0.01
Flash Point (Cleveland open cup), °F.	200	260	365

CARBIDE AND CARBON CHEMICALS COMPANY

A Division of
Union Carbide and Carbon Corporation
30 East 42nd Street New York 17, N. Y.

Offices in Principal Cities
In Canada:
Carbide and Carbon Chemicals, Limited, Toronto

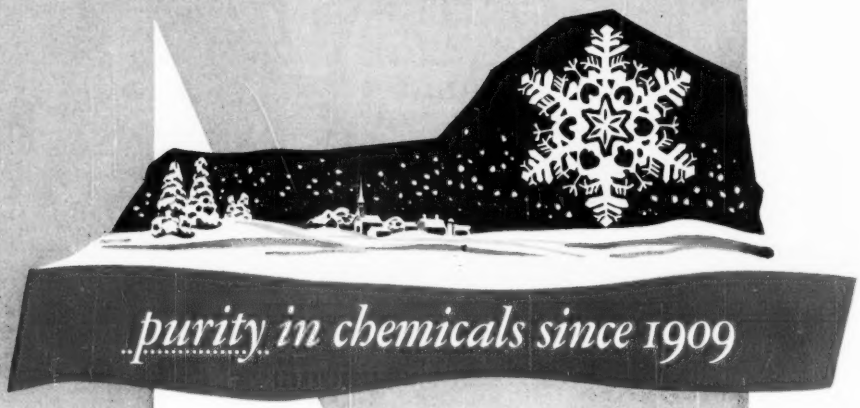
NP-104

• SODIUM BICHROMATE

• SODIUM CHROMATE

• POTASSIUM BICHROMATE

• SODIUM SULPHATE



purity in chemicals since 1909

BICHROMATE Natural OF SODA

NATURAL PRODUCTS REFINING CO. JERSEY CITY 5, N. J.

GREENSPAN AND KAUFFMANN: An expanding industrial role for peroxide progeny.

Peroxide Progress

New uses and technological advances pace the rapid industrial climb of peroxygen chemicals.

Established jobs, like bleaching, have gained most marvelously, but a variety of promising new applications are bright commercial prospects.

In 1930 only about 10% of all cotton goods were bleached with hydrogen peroxide; in 1950, the figure was close to 70%. Most of this gain was registered in the years immediately before and after World War II.

The desirable bleaching properties —mildness, no undesirable by-products, easy control, etc.—of hydrogen peroxide doubtless deserve an important share of the credit for this increase. But another inherent characteristic of peroxide bleaching probably made it all possible. It's simply this: Bleaching with peroxides is a flexible operation, can be modified in many ways and adapted to a great many conditions encountered in industrial practice.

One of these modifications, the use of more concentrated solutions at higher temperatures, paved the way for continuous bleaching processes and the resulting leap in peroxide consumption.

Although the textile industry has reaped the bulk of the peroxide research harvest, pulp and paper also has benefited. The development of peroxide bleaching methods for groundwood pulps has made possible their utilization in higher cost papers. Today many of the better commercial grades of paper* are made from these peroxide-bleached pulps.

But peroxide progress in the pulping industry hasn't come to a standstill. Research is now focused on the development of satisfactory and economical peroxide bleaching procedures for chemical pulps.

Industrial organic synthesis probably provides the most room for peroxide expansion. Only in recent years has hydrogen peroxide achieved any prominence as a commercial-scale process oxidizing agent. Three developments have been chiefly responsible: new and improved reactions utilizing hydrogen peroxide or peracids; commercial availability of highly concentrated grades; commercial introduction of peracetic acid.

Right Combination: Combine these with some fundamental chemical properties of hydrogen peroxide, like its low molecular weight and reduction to water in oxidations, and you have the reasons for peroxide's appeal to the organic chemist. And the utilization of peracids adds another measure of depth to peroxide potentialities.

On the strength of basic peroxide chemistry and years of research experience, technical director H. O. Kauffmann and chemist F. P. Greenspan, of Buffalo Electro-Chemical Co., Inc., foresee an expanding role for hydrogen peroxide and its peracid progeny in chemical manufacture.

Epoxidation and hydroxylation reactions are easy for peracids, will be strong points in a bid for greater industrial recognition. Epoxy compounds are of interest as reactive intermediates in organic synthesis, stabilizers for chlorinated polymers, agents for the production of new resins, surface-active materials, long-chain glycols, synthetic waxes and lubricating greases. One of the more recent large-scale applications of epoxidation is in the manufacture of the insecticide dieldrin.

Still another new application of hydrogen peroxide and organic peracids is in the production of 17-hydroxy steroids like cortisone. Key steps in this synthesis are the introduction of 11-keto and 17-hydroxy groups. Organic peracids (e.g. performic) are used to make 11-oxygenated derivatives; and peracids as well as hydrogen peroxide make possible the subsequent introduction of the hydroxy group in the 17-position.

Oxidation of ketones with peracids provides a novel method of attaching a hydroxy group to a benzene ring and also is popular in steroid work. Moreover hydrogen peroxide and peracids are valuable quinone-forming agents. One promising application here is in the synthesis of 2-methyl-1,4-naphthoquinone, a vitamin K.

Cold Dividend: Possibly the most interesting property of peroxygen compounds is their ability to form free radicals. This knack has been

* *Life*, *Time*, and *Reader's Digest* are printed on paper from peroxide-bleached pulps.

put to good use in vinyl polymerizations and other free radical processes. Possibly the most notable recent advance in peroxide catalysis is reduction-activated polymerization. Reduction (redox) polymerization, by making possible practical polymerization rates at low temperatures, has opened a broad new avenue to the industrial polymer chemist. "Cold" rubber is one dividend redox polymerization already has paid in the synthetic rubber field.

Depolymerizations are similarly catalyzed by peroxides. These reactions are useful in the recovery of monomers and low polymers from plastic scrap. And the peroxide depolymerization of starch gives a modified, lower-viscosity product possessing many commercially useful properties.

The value of peroxygen chemicals isn't limited to organic processes alone. In the inorganic field, the ability of hydrogen peroxide to precipitate objectionable metallic impurities comes in handy in the purification of nickel plating solutions, preparation of beryllium and magnesium from wet processed ores, and phosphatizing of steel. Peroxygen compounds now are being eyed for their possibilities as solubilizers in ore-leaching processes.

The antimicrobial activity of the peroxides isn't being neglected. Recently, a solution of hydrogen peroxide in glycerine has attracted considerable attention as a germicide for infections of the ear, nose and throat. Peracids, particularly peracetic, have proved effective as a germicidal wash *(CW, Mar. 10)* for fruits, vegetables and food handling equipment.

Hydrogen peroxide's high heat of decomposition and reaction provides additional ground for exploration. The substance's use as a fuel for rockets, torpedoes, etc., was familiar to the Germans and now is the center of similar research in this country. More along civilian lines, the decomposition of hydrogen peroxide has been proposed as a source of heat for cleaning oil wells which have become plugged with paraffin.

Last, but by no means the least of hydrogen peroxide's attributes, is its gas forming ability. Suggestions for harnessing this property range from uses in breathing apparatus to soil aeration. But the most promising of these is its possible utilization as a blowing agent. Applications in the production of building materials (e.g. porous gypsum) look promising. Moreover several processes employing hydrogen peroxide for the manufacture of foam rubber and plastics, have already been worked out.

Phthalocyanine Mystery

A new phthalocyanine dyestuff, known as Phtalogenbrilliantblau* F3G, has been developed by the research laboratories of Bayer Leverkusen. The German firm isn't giving out many technical details of its latest discovery, but several interesting and provocative facts are known. For one, the formation of the new dye is based on the reaction of a "new" phthalic acid derivative with copper sulfate. Just what this derivative is, is anyone's guess. But there's little question about what it does for the new dye.

Phtalogenbrilliantblau produces a brilliant blue on textile fibers. Moreover it's a highly fast dye, especially with respect to light. These attributes has not gone unnoticed in this country. General Dyestuff Corp. (General Aniline and Film Corp.) gave the product a close look, says it lives up to its notices. General Dyestuff now has a small quantity of the dye on hand, believes it will prove itself in textile printing applications.

The new dye's color-producing reaction is released by heat or steam. Like so many dyeing processes, this one demands a watchful eye. Solvents and textile materials must be carefully selected. Moreover, conditions of application must be controlled to prevent too rapid a reaction—with consequent premature cracking of the printing dye.

Food For Thought: Although the exact phthalic acid derivative used in the manufacture of the German dye hasn't been disclosed, there is plenty of room for speculation. Phthalocyanines based on *o*-cyanobenzamide, iminophthalimide, and phthalonitrile are well known. And substituting in the benzene portions of these compounds also is familiar practice (a number of phthalocyanines chlorinated in their benzene nuclei have been on the market). Whether the phthalic acid derivative in Phthalogenbrilliantblau F3G really is new or merely a modification of a conventional type, remains to be disclosed.

Incidentally, it's known that other interesting shades may be obtained with the German phthalic derivative and other metal sulfates—nickel, for example. Of course this isn't unexpected in phthalocyanine chemistry.

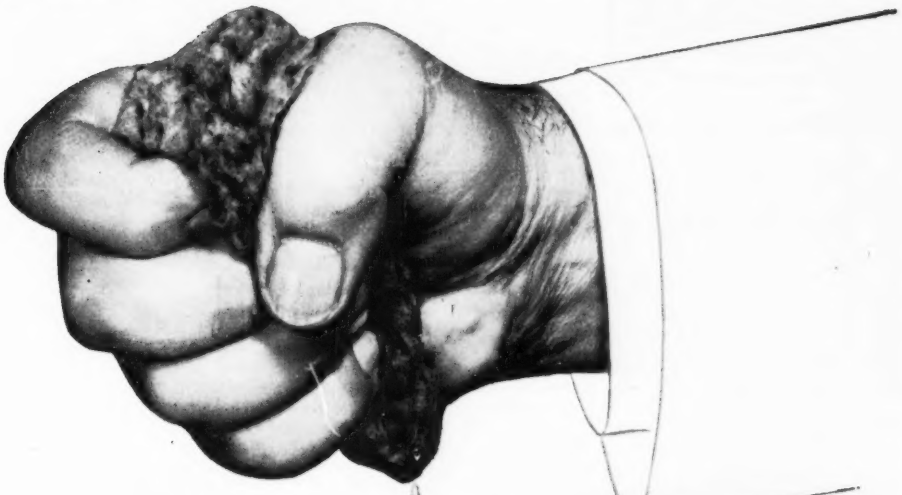
At the moment, only Phtalogenbrilliantblau is commercially available. The dye may be had directly from Bayer Leverkusen or via domestic dyestuff importers.

* Vivid blue phthalocyanine dye.

Corn and the Atom

RADIATION AND GENETICS is the broad title for research at California Institute of Technology's eight-acre Biology Experiment Farm. Pictured with six radiation-induced corn mutants are gardener John Dale (left) and Prof. E. G. Anderson, chief of the installation. Last four specimens (from left) are descendants of the Bikini and Eniwetok atom blasts; stunted growth and various structural anomalies characterize these survivors. The Caltech work, probing of heredity, is supported by Atomic Energy Commission.

we've "squeezed" all the water out of citric acid!



buy CITRIC ACID ANHYDROUS

and *Save* the cost of shipping and handling a gallon of water with every 100 pounds of citric acid

There are 8.58 pounds of water of crystallization in every 100 pounds of Citric Acid U.S.P., but there is *none at all* in Pfizer's Citric Acid Anhydrous. You save 8½ pounds in shipping weight for every 100 pounds of the U.S.P. material formerly used. You can save a ton on a truckload shipment!

Pfizer Citric Acid Anhydrous is prepared by a special process developed in Pfizer's research laboratories. It cannot dry out, and it does not absorb water. Freedom from caking makes it easy to handle, cuts waste. Its composition remains absolutely constant, insuring uniform results.

Write for technical data and prices to

Chas. Pfizer & Co., Inc., 630 Flushing Ave., Brooklyn 6, N. Y.; 425 North Michigan Ave., Chicago 11, Ill.; 605 Third St., San Francisco 7, California.

PFIZER

Manufacturing Chemists for Over 100 Years

ROSBY

THE MARK OF QUALITY

STEAM DISTILLED WOOD TURPENTINE

Attractive Pint, Quart, Gallon and 5 Gallon Containers
Tank Cars

LIMED ROSINS

Calbrite, FF-L-45

ESTER GUMS

Glycerol and Pentaerythritol Types

PALE WOOD ROSINS

All Grades X to K

BEREZ

A dark wood resin available in solid or solution

GLOSS OILS

Gloss Oil 60
Gloss Oil 65

MALEIC MODIFIED ESTERS

Crosby 1015, 1016, 1417, 1418

*All Pale Rosins and Resins Available in New Type Light Tare, Scrap Value, Aluminum Drums.

CROSBY CHEMICALS, INC.

DE RIDDER, LOUISIANA

Plants: Picayune, Miss., and De Ridder, La.

REPRESENTATIVES IN ALL PRINCIPAL CITIES

RESEARCH

Resinate News: Methods of preparing new metal resinates are outlined in U.S. Patent 2,572,071 granted recently to Ray V. Lawrence, chief of the technical section, and William St. Clair, former staffer at the U.S. Department of Agriculture's Olustee Naval Stores Station, Olustee, Fla.

The methods involve fusion of modified rosins with a metal compound to produce neutral, permanently fusible resinates of high metal content. These new resinates are expected to find use as protective coatings, catalytic drying agents for unsaturated vegetable oils, wood preservatives, wetting and dispersing agents and bactericides.

•

Rubber Research: The Los Angeles Rubber Group, Inc. has a good start on the $100,000 it is trying to raise for a rubber technology foundation at the University of Southern California. The foundation, a joint venture of U.S.C. and the Rubber Group, will train scientific personnel and conduct research for Los Angeles rubber manufacturers and processors.

•

Deadly Hormone: Experimental quantities of 2-methyl-4-chlorophenoxyacetic acid (MCP) will be available from Monsanto Chemical Co. early next year. A hormone-type weed killer, the product is well known in England; Monsanto's output will mark the first production of MCP in this country. MCP is similar to 2,4-D in its action, but apparently better tolerated by certain grasses, cereals and legumes.

•

Film Boon: Du Pont researchers have come up with a new, transparent polyester film base. It's tougher than conventional types and retains its dimensions over a wide range of atmospheric conditions. According to the company, five years of research and more than $1 million went into development of the new product.

Limited quantities of finished film, containing the new base, will shortly be made available to the motion picture industry and the armed forces. Go-ahead on large-scale production will await the results of evaluation.

•

Inside Dope: The Fourth Annual Report on the Research Requirements of American Industry, compiled by Evans Research and Development Corp., highlights some interesting facts on the 1951 research year. A breakdown of total research time, by participants in the Evans survey, revealed that an average of 46% was spent on improving products and processes for civilian use, 35% was devoted to development of new products and processes for civilian use, 15% went into fundamental research and 23% was earmarked for government contract research.

•

Rapid Analysis: Researchers of Eli Lilly and Co. have devised a rapid infra-red control procedure for analyzing pharmaceuticals containing sodium propylmethyl carbinylallyl barbiturate and sodium isoamylethyl barbiturate. Both components are determined simultaneously with only moderate interference.

The infra-red procedure now makes possible the determination of the individual compounds. Previous chemical methods gave only a measure of total barbiturates since chemical separation is virtually impossible.

•

Synthetic Gravel: Benjamin K. Hough and Julian C. Smith of Cornell University have devised a process for making synthetic gravel from mud. Mud, several undisclosed chemicals and sulfite liquor are mixed and fused into the shape of large dog biscuits. These in turn may be broken up to resemble crushed rock. In evaluation work, the synthetic gravel successfully withstood submersion in water for six months, freezing, thawing and impact.

•

Extended Life: Cooperative research by Wyeth Institute of Applied Biochemistry and Penicillin Division of Wyeth Inc. has paid off with N,N'-dibenzylethylenediamine penicillin, a new salt of the antibiotic. A combination of two parts penicillin and one part N,N'-dibenzylethylenediamine, the product—trade-named Bicillin-Wyeth—is stable for eighteen months at room temperature.

The new salt was well tolerated by patients in clinical trials, proved palatable in oral therapy. Because of the long-duration blood-penicillin levels it produces, the salt should be valuable in the treatment of syphilis and rheumatic fever.

•

Job Seekers: Antibiotics for industrial applications is the subject of a recent report by Chas. Pfizer & Co., Inc. Among possible industrial uses for the wonder drugs, Pfizer cites the following: Bactericidal and fungicidal agents for preventing the deterioration of textiles, plastics and synthetic fibers, electrical insulation, paints and surface coatings, and processing solutions. Also noted are potential applications in cosmetics, food processing and canning, leather disinfection, fermentation processes and plant disease control. Pfizer emphasizes that these are only logical possibilities, in many cases totally unexplored.

Down But Not Out

Quaternary morpholinium ethosulfates, originally touted as germicides, are making the grade in a variety of specialty formulations.

Two are now available, are being used commercially in deodorants, hair preparations and textile compounds. And other applications requiring surface activity look promising.

When research on quaternary morpholinium ethosulfate compounds was launched by Atlas Powder Co., the company had high hopes of stealing a march on the sanitary chemicals field. Like many of their kin, these novel quats are germicidal; but unlike most, they aren't precipitated by soaps or anionic detergents.

The logical question—to Atlas at any rate—was: Why not put this unique virtue to advantage in a really effective combination germicide-cleaner?

After a year of work, Atlas got the answer and it wasn't very encouraging. In the presence of soap, the new quats were stable all right, but not especially germicidal. At least not enough to warrant further development along this line.

Despite this setback, the quaternary morpholiniums were not to be denied. Proof comes in the form of two new Atlas products, G-251 and G-271. The former is a solution of ethyl cetyl morpholinium ethosulfate while G-271 contains ethyl soya* morpholinium ethosulfate. Both are offered for a spate of specialty applications, but Atlas, preferring to highlight other more striking functions, understandably plays down their germ-killing properties.

Unexpected Catch: Odor control is perhaps the most important use for the new products. It's well known that the quaternaries as a group exhibit definite deodorizing properties. But the high activity of the morpholinium family came to light by a lucky coincidence. One of the researchers who played a part in the unsuccessful germicide project, doused his hands with a morpholinium derivative after cleaning a catch of fish. The result was rapid olfactory relief and the promise of a new life for the quats.

Back to the laboratory they went; high deodorizing capacity was confirmed with such substances as butyric acid, amyl mercaptans and indole. Glenbrook Chemical Co. (Glenbrook, Conn.) evaluated the products, found G-271 effective against many "hospital smells" and odors of cooking and household pets. In one test, in a rest room at the Stamford, Conn., railroad station, the compound not only removed the undesirable aromas, but also deodorized the camphor cakes present.

Glenbrook incorporates G-271 in a product called X-O for home, hospital and institutional use. The company also has plans for the quat in a mouth wash and as a dedorizer for air conditioning systems.

G-271 is no olfactory panacea; it isn't any good against paint odors, for example. Nevertheless, it does work on more smells than many competing materials. And it's more than a masking agent, leaves behind no tell-tale odor of its own.

Hidden Talent: An interesting outgrowth of G-271's deodorizing prowess is the popularity it is gaining among manufacturers of permanent wave kits. The product got its foot in this door on the strength of its ability to cope with the ripe-smelling sulfur-containing compounds in the wave formulations.

But G-271 had more to offer: It soon was discovered that the compound's long hydrocarbon chain gave rise to a decided hair conditioning effect. Because of this happy circumstance, the quat is slated for service in shampoos and other hair treating products.

Like hair, animal and vegetable fibers are affected by G-271. Consequently, the product has a place in textile applications. It's useful as a lubricant and sizing emulsifier, also imparts a good hand to fabric. Moreover, its compatibility with soaps and detergents, stability in acid and alkali are strong points with textile processors. Although of the two, -271 has most of the textile trade, -251 (the cetyl derivative) is preferred in some applications. In fact, textile processing now shapes up as -251's chief market.

Aside from their place in deodorizing products, toilet specialties and textile assistants, the morpholinium ethosulfates have decided commercial potential in applications that would put their surface activity to work. Use in industrial emulsions looks highly promising at this time.

JOSEPH NIEDERL: New life for morpholinium family.

Assist from Wax: The morpholinium quats can thank the wax industry for their very commercial existence. Ten years ago, the cost of morpholine would have discouraged even the bravest attempt to use it as an industrial raw material. But morpholine's soaring popularity with wax manufacturers toppled its once-lofty price to about 6¢ a pound where it stands today.

Industrial interest in morpholine picked up as its price started down. The basic research on the morpholine quaternaries is credited to William F. Hart, Martin E. McGreal and Joseph B. Niederl of Lafayette College, St. John's and New York Universities respectively. R. G. Moench and Co. (New York City) piloted the compounds through their early development, later turning them over to Atlas. For a time after their commercial debut, Moench retained distribution rights, but today Atlas handles marketing as well as manufacturing.

Atlas is going slow in promoting its new charges, and for a good reason: It is dealing with a new class of compounds, realizes the importance of getting off on the right foot. Research, especially on toxicity, continues. Until all returns are in, the company banks on its better-safe-than-sorry policy as a sure route to future sales dividends.

* Long chain hydrocarbon residues derived from soy glycerides.

Silage Saver

There's a promising new market for sulfur dioxide down on the farm: Preserving the nutritional value, texture and flavor of grass silage. Grass farmers say SO_2 is cheaper and better than traditional materials such as molasses, corn and cob meal.

What began this year as a trial run by Virginia Smelting Co. developed into a full-scale operation when Pennsylvania grassland farmers took more than 300,000 lbs. of sulfur dioxide and clamored for more of the new silage preservative.

Now Virginia Smelting's Silagas is being joined in the field by Ansul Chemical Co.'s newly marketed Grassaver Gas, and Tennessee Corp.'s as yet un-named product.* Distribution next year, say these companies, should be in the neighborhood of 1½ million lbs., and from there, quantity sold should rise to a 5 million lb.-a-year plateau.

Idea Pusher: Actually the idea of using SO_2 to preserve grass silage is not new. Almost 15 years ago Virginia Smelting Co.'s late vice president, Charlie W. Johnston, began promoting the heavy gas for possible use as a cattle feed preserver. He talked independent farmers, farm bureaus, and college experiment stations into giving it a try. Now, recent tests under the direction of C. B. Knodt at Penn State, and Charles Rogers at Ohio State would seem to bear him out.

Their work showed that bacterial action was stopped by the weak acid formed when SO_2, properly applied, combined with the moisture in grass. Cutting down this fermentation meant that more dry matter was preserved, the intense odor of decaying grass was eliminated, and the grass retained more of its original nutrients such as carotene.

Since natural texture and flavor were also retained, the cows actually seemed to prefer sulfur dioxide-treated silage to grass preserved by other means.

Cost Down: Treatment with sulfur dioxide is cheaper than conventional preservation methods, too. Five pounds will treat a ton of silage. Cost—at current market prices for sulfur dioxide—is $1; enough molasses to preserve a ton of grass silage is $5.00; enough corn and cob meal, $4.28. The natural materials, of course, have nutrient value, but the work of Knodt and Rogers showed that pound-for-pound, sulfur dioxide-treated silage was superior to, and cheaper than silage containing one of the other substances.

The application method involves injecting liquid sulfur dioxide into the ensiled crop at two-foot intervals at about a five-foot depth. The fresh mown grass absorbs the chemical rapidly, and the silage is preserved for an indefinite period.

Both Virginia-Smelting and Ansul make and market their own applicators, but they are also handled by Liquid Fertilizer Applicator Co., Inc. (Decatur, Ga.) and State College Laboratories (State College, Pa.).

To date, distribution of the sulfur dioxide has been through farmer cooperatives, but other possible distribution points are hardware stores and feed stores.

Bottleneck: So far biggest distribution bottleneck promises to be the acute shortage of the 150-lb. cylinders used to get the liquid sulfur dioxide to the farmer. During the three weeks of next year's grass harvest, some 10,000 of these cylinders will be needed. These will be available, producers claim, but if the market is to expand further, other means of distribution will have to be investigated.

At present Tennessee Corp., with only a few of these containers in stock, is planning to market its product in both 75- and 105-lb cylinders. Other companies may conceivably follow suit. Once this packaging problem is licked, the way looks clear for continued development of this new sulfur dioxide market. For producers claim that the sulfur shortage will not affect their ability to supply the gas. And should sulfur dioxide become critically short, they feel that silage preservation is so important that the Government will see that farmers receive an allotment to take care of their needs.

* Consensus at Tennessee is that the company will break with tradition and just call its product sulfur dioxide.

Nosing Ahead

Cold suffers in Madison, Wis., and Rockford, Ill., are now treating their sniffles with a new nose drop. If marketing tests are successful, Coromist nose drops will be available nationally next year.

Active ingredient in the formulation is a yellow dye—disodium-5-(*p*-sulfophenylazo)-salicylate—which exhibits bacteriostatic action. Its main competition as an over-the-counter item will be present neosynephrine-based nose drops, which offer relief by constricting nasal passage membranes.

Coromist's main selling point, for which it offers clinical proof, is that it reduces the severity and length of cold symptoms such as a running nose. No claim is made that the formulation affects the virus believed to be the cold's primary cause.

In addition to its bacteriostatic dye, present in a 3% concentration, Coromist's formulation includes a wetting agent which lowers surface tension, allowing penetration of membranes. Osmotic balance of the compound is adjusted to equal that in nasal tissues.

Coromist is the brainchild of Frank Hazelton, former professor at George Washington University, who now operates his own consulting laboratory at Falls Church, Va. He is a stockholder in Bio Research, Inc., of New York, which is handling the marketing.

The market tests in Illinois and Wisconsin will continue through March, when results will be tabulated. The decision on whether large-scale distribution is feasible will be made on the basis of these tests. One present encouraging sign: Coromist has distribution in 100% of the drug stores in the test areas.

The liquid is available in a dropper bottle, but may, in the future, be packaged in a disposable polyethylene container designed for nasal spraying. Use as a gargle is also in the testing stage.

•

Tax on Fertilizer: A 5¢-a-ton assessment on fertilizer sold in North Carolina will begin on Jan. 1. The fee, to be used in promoting agricultural research, will be collected through the state Agriculture Department, which now charges an established fee of 25¢/ton for inspection of feed and fertilizer.

•

Tubed Polish: New entry in the rust and tarnish remover field is Metalure, a lead tube-dispensed green paste marketed by Rustaway Co. (New York). A combination of oils, ammonia, and fuller's earth, the perfumed polish (49¢ for the 3 oz. tube, 98¢ for the 7 oz. size) is claimed to remove tarnish and stains from brass, chrome, copper, aluminum, porcelain, and tile.

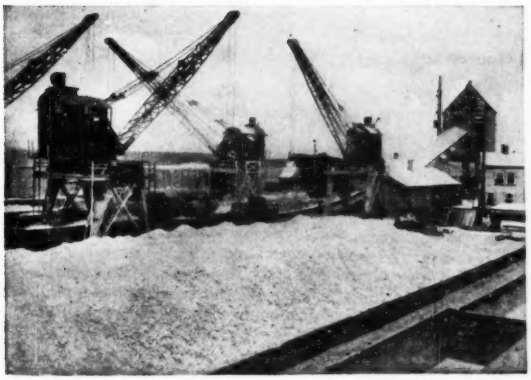
•

Without Limits: Sucaryl, Abbott Laboratories' non-caloric sweetener for diabetic and reducing diets, may now be used without limiting daily intake. This change in recommended usage is the result of pharmacological and clinical studies showing no harmful effects from unrestricted use, and as soon as present stocks are exhausted,

SULPHUR

*Interesting Facts Concerning This Basic Raw Material from the Gulf Coast Region

*LOADING



Sulphur intended for vessel shipment is brought to Galveston by rail from the mines at Newgulf. It is transferred directly from cars or from storage bins to the vessel.

The loading plant consists of two parallel storage bins spaced far enough apart to allow room for railroad tracks, tracks for the hoppers and cranes, and an endless conveyor belt. The belt along the center line between the bins is straddled by four cranes and their movable hoppers.

The cranes pick up the sulphur from the bins or cars and discharge into the hoppers, which automatically feed the belt. It is weighed while on this moving belt. After weighing it is discharged onto a smaller belt which in turn discharges through a cylindrical telescopic spout directly into the vessel's hold.

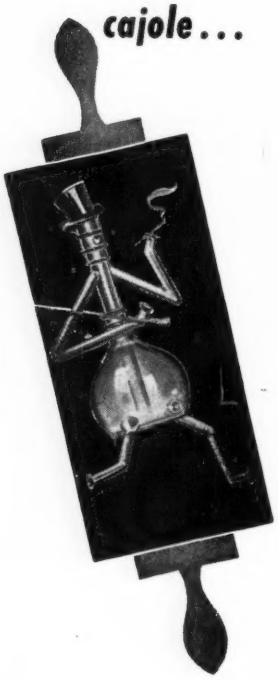
Loading operations at our Newgulf, Texas mine

TEXAS GULF SULPHUR CO. INC.

75 East 45th St. New York 17, N. Y.

Mines: Newgulf and Moss Bluff, Texas

Chemicals that persuade... convince... cajole...



The time and hour call for chemicals with compelling personalities... chemicals with dynamic qualities that IMPROVE YOUR PRODUCTS ..that make them **look better, smell better, taste better.**

Dodge & Olcott has such chemicals and continues, as it has for the past 152 years, to develop new techniques, new materials, and excitingly new fragrances that answer the need and desire of American industry... that will evoke **popular demand** for your products. Consult D & O.

D.O

DODGE & OLCOTT, INC.

180 Varick Street • New York 14, N. Y.

ESSENTIAL OILS • AROMATIC CHEMICALS
PERFUME BASES • VANILLA • FLAVOR BASES

the sucaryl label will no longer carry recommended restrictions.

•

Schwartz Branch: Schwartz Chemical Co., New York City, has just purchased a building in Burbank, Cal. where it plans to open a branch plant in the next two months. The company makes cements, lacquers, dyes and liquid cleaners for the plastics industry.

•

Heavy Detergent: Diamond Alkali has developed a new detergent designed for washing heavily-soiled work clothes in institutional and commercial laundries. Called Diamond O & W Compound, it is described as a "balanced silicate incorporating a special ingredient with high grease absorption". It is packed in 350-lb. barrels, will be distributed for the present only in 14 states in the Southeast, Central South and Southwest.

•

Glass Fabric Laminate: Fabricon Products (River Rouge, Mich.) is now marketing Phenopreg LP-502, a tacky low-pressure laminating material composed of glass fabric impregnated with General Electric's #3405 Permafil resin. It is used in molding layups without use of staples or other fasteners. Present applications are in low-pressure molding of aircraft tooling jigs and fixtures, but the material is also being considered for making auto and airplane protoypes. Parts molded at 300F and 15-75 psi are said to have high mechanical strength, good moisture and chemical resistance, and excellent electrical properties.

•

Greater for Green: Chlorophyllins, which have found use in deodorants, mouthwashes, toothpaste and chewing gums, have now graduated—or descended—to the canine level. Quaker Oats Ken-L division has begun packaging its Ken-L-Ration canned dogfood and Ken-L-Ration and Ken-L-Biskit, dry dogfood, with chlorophyllins added to the formula. At present, the products are being distributed only in Far Western states, but results there have been so promising that national marketing is scheduled for January.

Kasko Mills, Inc., Waverly, N.Y., is planning a similar move.

•

Surface-Active Agent: American Cyanamid has developed a new surface-active agent, Aerosol SE, which is expected to find application in the textile, paper, plastics and surface coatings industries. It is stable, a good detergent; has rewetting and surface tension lowering properties along with moderate antiseptic action.

It is a quaternary ammonium compound—a 50% solution of stearamidopropyldimethyl-B-hydroxyethylammonium chloride in an isopropanol-water mixture. In the textile industry, it will be sold as Deceresol SE; paper industry, as Paper Product 2000; other industries, as Aerosol SE. It is a light straw-colored liquid, soluble in water in all proportions.

BOOKS . . . . . .

The Making, Shaping and Treating of Steel, sixth edition, based on text by J. M. Camp and C. B. Francis. United States Steel Corp., Pittsburgh, Pa.; 1435 pp., $7.50.

Along with World War II came a terrific surge of technological development, and steel played a significant part in this scientific upswing. To cover advances in the steel industry, this new edition discusses new steels, steel-making methods, and the revision in steel compositions brought about to conserve alloying elements in a national emergency. One of the most revised sections is the one dealing with the principles of heat treatment, thermodynamics, heat flow and ceramics. The raw material sections now include discussions of the desulfurization of coal and the beneficiation of ores. The index, with 23,000 listings, is cross-referenced.

MEETINGS . . .

Northeastern Weed Control Conf., annual meeting, New Yorker Hotel, New York, N.Y., January 2-4, 1952.

Natl. Constructors Assn., annual meeting, Waldorf-Astoria Hotel, New York, N.Y., January 8-10, 1952.

Synthetic Organic Chemical Manufacturers Assn., Commodore Hotel, New York, N.Y., January 9, 1952.

Manufacturing Chemists' Assn., inter-industry conf. on chemicals in foods, Statler Hotel, New York, N.Y., January 15, 1952.

Soc. of Plastics Engrs., national technical conf., Edgewater Beach Hotel, Chicago, Ill., January 16-18, 1952.

Drug, Chemical & Allied Trades section of New York Board of Trade, mid-winter luncheon meeting, Astor Hotel, New York, N.Y., January 17, 1952.

Compressed Gas Assn. Inc., annual meeting, Waldorf-Astoria Hotel, New York, N.Y., January 21-22, 1952.

Assn. of Amer. Soap & Glycerine Producers, annual conv., Waldorf-Astoria Hotel, New York, N.Y., January 22-23, 1952.

about chemical week

Things happen fast in the Chemical Process Industries
. . . like synthetic detergents, anti-histamines, and cold rubber
. . . like value of production, tripled in less than a decade.
And in America's fastest-growing industry profit-minded executives watch CHEMICAL WEEK
. . . to keep them abreast of the swift-moving trends
and developments which affect business interests.
In the process industries, CHEMICAL WEEK is management's own magazine.

CHEMICAL WEEK is deliberately designed for business-minded men,
alert for new ideas to speed production and increase profits.
That's why your advertising in CHEMICAL WEEK accelerates sales
. . . it carries your message direct to management levels
your salesmen find hardest to reach.
And in today's market, more and more advertisers are turning to CHEMICAL WEEK
. . . to sell management men and to keep them sold.

MANAGEMENT MEN ARE TALKING ABOUT....

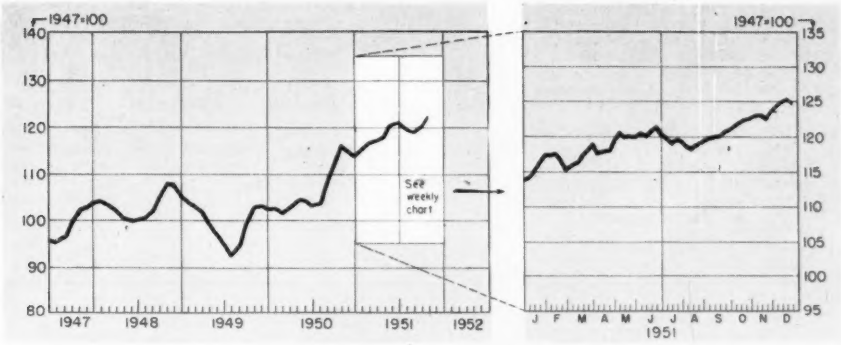
Chemical Week

ABC • ABP

A McGRAW-HILL PUBLICATION, McGRAW-HILL BUILDING, NEW YORK 18, NEW YORK

Consistent uniformity of end product is essential to keep consumer markets. Maas consistent quality phosphates are always dependable, produced in the west by the west's oldest and largest phosphate producer. Each batch is tested for uniformity to insure uniformity in your end products.

A. R. MAAS CHEMICAL CO.
Division of Victor Chemical Works
4570 Ardine Street, South Gate, California



CW Index of Chemical Output—Basis: Total Man Hours Worked in Selected Chemical Industries

Selenium supplies are all too short, and since it is only a minor offshoot of copper refining, little can be done to remedy this scarcity. What there is will have to be nursed along, because it is essential in the manufacture of rubber chemicals, pharmaceuticals, and other high-level defense uses (e.g., rectifiers).

Consequently, as of February 1, 1952, only NPA-approved purchases, deliveries, and uses will be permitted. Maximum inventory is set at 30 days' of normal operation. If you can manage on less than one pound a month, you're excused.

Within the next month, a compromise is expected on allocations of quebracho. This imported material finds its major outlets in oil well drilling muds and in tanning, and allocations are now limited to 60% of the amount used in 1950.

NPA, trying to build up the Government stockpile, asked a committee of quebracho distributors how to do it. The committee's opinion: Supplies, because of larger imports, are actually high enough to raise, not lower, the allotment; and it recommends an 80-90% level of 1950 use. NPA will decide whether this can be done without jeopardizing the stockpiling plan.

Polyol buyers stand to benefit from bumper supplies in 1952. Ethylene glycol output, now a robust 600 million pounds, should readily cope with most of the demand for permanent anti-freeze.

More propylene glycol will therefore be channelled to other outlets such as alkyd resins, humectants, etc. And with a boost in synthetic glycerine output coming in this month, quadrupling of sorbitol production this year, and pentaerythritol now at a capacity of 60 million pounds a year, the vying for markets should be lively.

Between anticipated supply and demand for hydrofluoric acid in 1952 is a gap of 10 million pounds. To place supplies in the proper end use, NPA is slated to issue two orders (1) to limit consumption of the acid (2) to conserve on acid-grade fluorspar.

WEEKLY BUSINESS INDICATORS	Latest Week	Preceding Week	Year Ago
Chemical Industries Out put Index (1947=100)	125.0	124.9	114.0
Bituminous coal production (daily average, 1000 tons)	1,890.0	1,865.0	1,948.0
Steel ingot production (thousand tons)	2,080.0	2,097.0	1,931.0
Wholesale prices—chemicals and allied products (1926=100)	138.2	138.0	138.6
Stock price index of 14 chemical companies (Standard & Poor's Corp.)	244.4	240.8	206.2
Chemical process industries construction awards (Eng. News-Record)	$3,518,000	$10,553,000	$6,374,000

MONTHLY INDICATORS—Foreign Trade (Million Dollars)	Exports			Imports		
	Latest Month	Preceding Month	Year Ago	Latest Month	Preceding Month	Year Ago
Chemicals, total	71.1	85.3	61.4	22.6	21.3	19.4
Coal tar products	4.5	6.8	5.3	3.9	6.8	1.9
Medicinals and pharmaceuticals	17.6	23.5	20.1	.649	.755	.7
Industrial chemicals	14.0	15.8	7.6	8.4	6.5	7.7
Fertilizer and fertilizer materials	5.5	5.2	3.3	8.1	5.9	7.9
Vegetable oils and fats, inedible	4.6	10.2	4.7	8.7	4.6	13.9

Just to make sure that the more urgent fluorspar needs are met, NPA will allot only half of 1950's consumption in glass and enamel. OPS has further paved the way for higher fluorspar output by lifting virtually all remaining price controls on high-grade ore.

The prospective shortage in oil additives, which are indispensable to premium lubricants, has been averted thanks to close cooperation between the petroleum industry and two Government agencies, DPA and PAD.

Whenever possible these agencies have seen to it that enough of the "hard-to-gets" like sulfur, chlorine, and phenol were available for the purpose, and proffered rapid tax writeoffs to get things rolling. And industry went all-out for production, often by switching equipment from less essential products.

Reiteration of the "more guns, less butter in '52" theme came from Defense Mobilization chief Wilson this week. His forecast sees metal cutbacks averaging about 50% for civilian durable goods, with some of these down as low as 10-20%.

Defense industries, of course, will fare better on metal allotments. For instance: The synthetic rubber program, in the first quarter of the coming year, will get 90% of the steel, 98% of the copper, and 88% of the aluminum it seeks.

The U.S. Navy's drive to conserve critical metals has paid off with a dual dividend. By using glued scarf joints in ship's planking—instead of scarce copper and scarcer silicon bronze fasteners—the Navy saves needless weight. This means also a sizable outlet for salt-water resistant adhesives.

New hope for supply-pinched sulfur users is raised by Frederic Arden, Asst. Director of NPA's Chemical Division. His analysis: Conservation and technology may ease the shortage sooner than many expect.

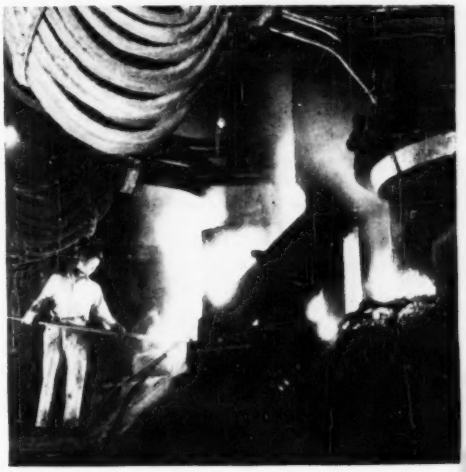
Consider the case of now-short carbon bisulfide, used mainly in the manufacture of viscose rayon, cellophane, and carbon tetrachloride. Three developments point to supply relief: Synthetic fibers have slowed rayon growth; other plastic films have partly replaced cellophane; and hydrocarbon chlorination may be competitive for making carbon tet.

SELECTED CHEMICAL MARKET CHANGES—Week Ending December 21, 1951

	Change	New Price		Change	New Price
UP					
Ouricury Wax, ref.	$ .03	$ .88			
DOWN					
Casein, dom., ord.	.01	.34	Quicksilver, 76 lb. flask	$3.00	$211.00
Linseed Oil, raw, tanks	.01	.20			

All prices per lb. unless quantity is stated

SUPERPHOSPHATE SUPPLIES: For 1952, 80% of demand.



FERTILIZER FROM PHOSPHORUS: Not commercial yet.

Super Scarcity

Superphosphate will be short in 1952, but just how short depends on NPA's sulfuric allocation order.

One way to outflank the sulfuric dearth: triple superphosphate via elemental phosphorus, but process isn't competitive yet.

Significant increase in "triple super" production is slated for 1953. Reason: AEC, wanting the uranium byproduct, encourages phosphoric acid manufacture.

Fertilizer makers last week were forced to wonder just what 1952 production schedules would be. Why: They didn't know yet how much sulfuric they'll get from NPA.

Producers believe they'll be able to pro-rate shipments to customers at 80-85% of last year's levels—slightly under the expected NPA sulfuric allotment of 90%. But on phosphoric acid-based triple superphosphate, manufacturers expect to supply users at the full sulfur allocation percentage.

Despite their efforts to extend supplies, however, they fear that regionally the picture will parallel 1951, with spot shortages in several areas.

The basic cause of these regional problems has been three-fold: (1) the overall sulfuric shortage, (2) spot shortages of the acid for those who do not have captive or long-term contract supplies, (3) an increasing demand for phosphate fertilizer.

The East Central states have been relatively well off supply-wise, but mounting demands here have gobbled up any surplus that might have been forecast—based on the historical use pattern. In the upper Mississippi Valley area, rising demand has been the prime cause of the scarcity. The Southeastern states' shortage arose primarily from diversion of merchant acid to other industrial uses. Supplies now are so tight that some mixed fertilizer formulators are buying superphosphate from Ohio Valley points and absorbing freight costs just to be able to meet commitments.

A Faint Glimmer: Of two methods of increasing production, only one seems practical at present—but little if any relief can be expected therefrom before 1953.

Unless the shortage gets far worse, price considerations and the electric power dearth will rule out supplementing supplies of fertilizer phosphates through use of phosphoric acid made from elemental phosphorus. Triple superphosphate is normally made from wet-process phosphoric acid, for which sulfuric is a raw material.

At one time, some acid from elemental phosphorus did go to fertilizer. A sudden letup in normal demand from other users about 15 years ago brought prices down within reach of fertilizer manufacturers, but this surplus lasted less than a year.

Other Hope: The alternate method of increasing phosphate fertilizer production is—obviously—to get more sulfur. The problem would eventually solve itself if several new domes were discovered, but of course, this is small solace for the farmer this year.

With a not-quite-adequate sulfur supply, allotments for fertilizer production could be increased through political pressure. Especially with 1952 being an election year, the needs of farmers, as made known by their lobbyists, may not be ignored. But other sulfuric users would fight any such action.

The one tangible hope for a production increase comes from the AEC. Since uranium can be extracted as a byproduct of phosphoric acid manufacture (*CW, Dec. 1*), the AEC is encouraging producers to put in extraction equipment. Too, the Commission is helping them to obtain hard-to-get structural steel for such new plants.

Though this may seem like a case of the tail wagging the dog, it's a good bet that the Commission will get companies enough sulfuric to keep their plants operating at capacity.

Twelve plants are now being built under AEC aegis, but that production can't be expected to come in before 1953. The availability of this additional phosphoric acid in the future still means another long year of waiting.

What's Ahead: Despite the more favorable long-term outlook, manufacturers will be able to meet only 80%

LITHIUM
has arrived...

AND METALLOY IS BASIC TO THIS FAST-GROWING INDUSTRY!

Supplier Of Lithium In These Forms:
LITHIUM METAL
Cup....1/5 lb. Shot....4-8 mesh
Extruded Rod.....½" & ⅜" Dia.
Wire....⅛" Dia.....Ribbon ¼"
Cartridge (Encased in Copper Tubing).....2.25, 4.50, 9.0 & 108.0 Gram
LITHIUM HYDRIDE—Fine Ground
Supplied experimentally or commercially . . .

LITHIUM
- Carbonate
- Chloride
- Fluoride
- Hydroxide Monohydrate
- Nitrate
- Sulphate

Put Lithium to work for you today—Write Dept. A for FREE Data Sheets
IF IT'S LITHIUM—IT'S METALLOY

LITHIUM CORPORATION of America Inc.
METALLOY CORP., Division
Rand Tower
Minneapolis 2, Minnesota

MARKET PLACE
LOCAL STOCKS • CHEMICALS • RAW MATERIALS
EQUIPMENT • SUPPLIES

MARKET PLACE

FREE Catalog No. 677
Lists more than 300 items for Research:
BIOLOGICAL — MICROBIOLOGICAL — BIOCHEMICAL — BACTERIOLOGICAL — NUTRITIONAL
Save Time Use this catalog as a ready reference for biochemicals, media, and test diets. Write for it.
GBI 69 LABORATORY PARK CHAGRIN FALLS, OHIO

PROFESSIONAL SERVICES

EVANS
RESEARCH AND DEVELOPMENT CORP.
Chemical Research ▶ Processes ▶ Products
Development Problems
Complete Laboratory ▶ Pilot Plant ▶ Mechanical and Optical Sections
Ask for NEW Scope Sheet C listing over 100 of our activities.
250 East 43rd Street, New York 17, N. Y.

of this season's demands. Formulators, to stretch supplies, will use greater amounts of nitrogen and potash concentrates. These ingredients are relatively abundant.

In addition, many states will recommend that farmers apply phosphate rock itself to their fields. While this practice is an inefficient way to phosphate-improve soil, it is, in the farmer's mind, better than doing nothing at all—when super is scarce.

Short No Longer

Many furfural buyers, whose needs range from the multi-million pound class to the experimental batch, are hopefully eying the output of the newly-built and now-operating Quaker Oats plant at Omaha. This plant will make some 40 million pounds annually from corn cobs, hoisting Quaker's total production close to 100 million pounds a year.

Such a boost in capacity should considerably relieve the current shortage. More than that, it will also give furfural a chance to realize its growth potentialities.

First, though, there is an order backlog to be taken of. During the past year, new nylon capacity was brought in, and the increase in this top-volume use added pressure to the demand. An added note of urgency came with the revival of the GR-S program; here furfural needs are especially heavy in starting-up operations. Available supplies were further drained by the September fire at the Phillips Petroleum plant at Borger, Texas, which made the RFC dip into other stockpiles for makeup.

Solvent In Action: Furfural's selective solvent action is a prime reason for its popularity in other processes as well. Upgrading of lube oil by extracting the aromatics is rated furfural's second biggest use today. But like applications may one day move into the No. 2 spot. One of the most probable nominees is the purification of gas oil and other cat cracker feed stocks. This process, developed by the Texas Co., has more than one licensee already, and will head for a speedy climb to large-scale use if current hopes are realized.

Removal of aromatics from other petroleum fractions is, of course, a logical move in the same direction, so it's not a surprise to find such furfural processes already in the pilot plant stage. Another process with broad economic implications involves removing color-bodies from wood rosin, to make it competitive with the gum rosin. Hercules Powder has been active here, and now it has company: Dixie Pine Products, which has just completed a plant based on this process.

Plastics Emerge: But furfural gains are by no means limited to its solvent properties. As chemical building blocks, furfural and its offspring, furfural alcohol (FA), are extremely versatile. Furfural itself is in high demand now for large plastics moldings, an important use trend in the industry. It is said to improve the flow characteristics of the resin.

FA's progress is noteworthy, both in new outlets and the expansion of some older ones. One recent development is cement for acid brick linings. Mixed with asbestos, FA goes to make the familiar corrosion-resisting Haveg type resin. Reinforced with glass fiber, FA serves in the plastics pipe field, directly and also as protective armor for stoneware.

A new continuous process for making FA awaits the next upsurge in demand.

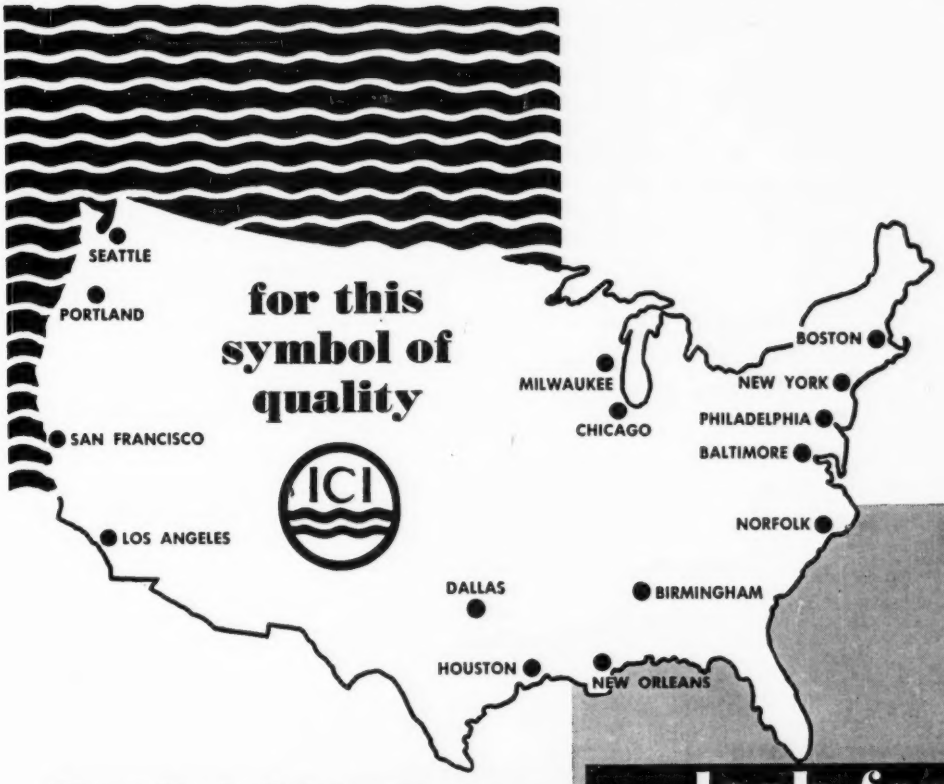
Bigger in Chemicals: Rapid headway is expected for the furfural family in chemicals and pharmaceuticals. For instance, the esters of tetrahydrofurfuryl alcohol (TFA) are marked for early gains. Esters of 2,4-D and of 2,4,5-T are used with good effect in brush killers. The oleate ester is sold as secondary plasticizer for vinyls. One of the amino acids, lysine, is now made from TFA on a pilot plant scale.

The 5-nitrofurfural carbazone is marketed rather widely as NFZ and used to treat coccidosis, a poultry disease. Quaker Oats buys some of the NFZ for use in its own poultry feeds. At the rate of one pound per nine tons of feed, this has a potential of considerable volume, especially since hogs also thrive on it.

Favored to Grow: Expansion of these and other uses for the furfural clan has depended in no small degree on the abundant and replenishable supply of the agricultural raw materials. On June 8 of this year, higher costs for gathering these materials brought a 1¢ price boost in furfural. Despite this, today's level of 10½¢ a pound is only 1½¢ more than the price of the early 1930's. At these low and steady price levels, and with the new supply boost, a flock of new furfural uses can safely be predicted.

PICTURES IN THIS ISSUE:

p. 12—Canadian Industries Ltd.; p. 14—International News Photos; pp 15 & 17—Wide World Photos; pp 20-21—Lyn Crawford, McGraw-Hill Pub. Co.



for this symbol of quality

ICI

These Stock Points Are Your Assurance of Quality Materials

● ● ● *When You Want Them*

● ● ● ● *Where You Want Them*

Sodium Bicarbonate
Sodium Nitrite
Urea
Ammonium Chloride
Ammonium Bicarbonate
Ammonium Carbonate
Bleaching Powder (Stabilized)
Perchlorethylene
Sodium Perborate
Chlorinated Paraffins

This is only a partial listing of the items we offer. Let us know your requirements.

...look for this symbol of service

CMC

CHEMICAL MANUFACTURING CO., INC.

21 WEST STREET, NEW YORK 6, N. Y.
369 PINE STREET, SAN FRANCISCO

Supplying ICI Heavy Chemicals to American Industry

CLOSE-OUT SALE

Our liquidation of the former SCOTTISH-AMERICAN DISTILLERY, FOOT OF ALEXANDER ST., PEORIA, ILL., has reached the close-out stage. A number of pieces of good equipment are now being offered at bargain prices to avoid having to bring them into our warehouse stock:

1—42" dia. Copper Rectifying Column, 21'2" high, 37 bubble cap plates, with 2 shell and tube copper condensers.
3—Copper Vertical Shell and Tube Condensers: (1) 75 sq. ft., (2) 340 sq. ft.
2—2053 gal. Vertical Welded Steel Yeast Tanks, 6'6" dia x 7'4" high, with 90 lin. ft. 2" copper coil.
5—Vertical welded steel tanks, flat top and bottom: (1) 9347 gal. (2) 7989 gal. (2) 5177 gal. (NOTE—These tanks will be cut for removal from building)
4—Vertical bolted steel tanks: (3) 5275 gal. (1) 3870 gal. (Now outdoors, unbolting not required).
1—Copper Dump Trough, 6' L x 20" W x 12" deep.
1—Vertical welded steel bin, ¼" and 3/16", has two vertical sections each 942 cu ft. total 1884 cu ft. (Will be cut for removal).
1—Richardson Automatic Dump Scale. "FF", 2 bu. cap., with feed and dumo hoppers.
1—Burmeister 32" x 80" galv. metal grain cleaner.
1—Hehle 2-roller mill, 9" x 22" rolls.
1—Barnard & Leas 3-pair high roller mill, 9" x 18" rolls.
1—Ingersoll Rand Bronze Centrifugal Motorpump #2-MRV-20, 175 GPM @ 260'. 20 HP motor.
5—Screw Conveyors: 9" x 15', 9" x 13'; 12" x 25½'; 12" x 21'.
8—Vertical Agitator Drives, 1 HP G. E. Gearmotor, 3/60/220-440/68 RPM shaft speed.

CONTACT MR. ZAROW at Peoria 2-4524.

PERRY EQUIPMENT CORP.
1415 N. 6th St., Phila. 22, Pa.

STEEL REACTOR FOR SALE

5000 Gal. Cap., Jacketed for 200# Pressure, 200# Internal, Agitated And Insulated, Complete With Drive & 15 HP Motor.

WHAT HAVE YOU FOR SALE?
Call SOuth 8-4451 - 9264 - 8782
You Can BANK on

EQUIPMENT CLEARING HOUSE, INC.
289-10th ST. BKLYN 15, N.Y.

Plant For Sale

Newark, N. J. Three-story brick building 71,000 sq. ft. Brick garage 10,000 sq. ft. Buildings—sprinkler throughout—2 freight elevators — heating system — loading dock 185 ft.—yard 6,000 sq. ft. 3 steam engines @ 550 K.W., 110 V.D.C.—two Diesels 20 and 40 K.W.—Boiler #1 @ 750 BHP, Boiler #2 @ 900 BHP, 160 lb. rtd. cpty. each. Softest water in state, low taxes, plentiful local labor, easily accessible to varied communities. Only substantial inquiries invited.

BO 2770 Chemical Week
330 W. 42 St., New York 36, N. Y.

YOUR DEFENSE AGAINST MACHINERY SHORTAGES

Call "CONSOLIDATED"

USED MACHINERY FOR THE CHEMICAL & PROCESS INDUSTRIES

Including Paint, Food, Rubber, Plastics, Sugar, Drugs, Cosmetics and Allied fields. Single items to complete plants.

CASH FOR YOUR IDLE EQUIPMENT

CONSOLIDATED
PRODUCTS COMPANY, INC. BArclay 7-0600
14-18 Park Row New York 38, N.Y.

GEAR UP FOR BIGGER PRODUCTION WITHOUT DELAY

GOOD USED EQUIPMENT
Ready for Immediate Shipment

It's Impossible to List in this space the 5000 Machines available from your FIRST SOURCE

Send for our Latest List

FIRST MACHINERY CORP.
157 HUDSON ST.
WOrth 4-5900
NEW YORK 13, N.Y.

WANTED
To Expedite Production

Process Machinery including Vacuum Dryers, Heavy Duty Mixers, Reaction Kettles, Columns, Rotary Filters, Filter Presses, Pulverizers, Packaging and Wrapping equipment, S/S and non-corrosive Storage Tankage. Will consider set up plant now operating or shut down. When offering give full particulars.

P. O. Box 1351
Church Street Sta.
New York 8, N. Y.

REPLIES (Box No.): Address to office nearest you
NEW YORK: 330 W. 42nd St. (36)
CHICAGO: 520 N. Michigan Ave. (11)
SAN FRANCISCO: 68 Post St. (4)

POSITION VACANT

WANTED: CHEMICAL Engineer with experience in developing new processes. Should have good background of creative work. Age 30-40. Man we are looking for is not only a capable engineer in his own right but also must have leadership ability necessary to supervise the work of other Chemical Engineers and development people. The job will consist of heading a development team. It is an excellent opportunity for the right man. Starting salary is about $6500.00 per year, depending upon background and experience. Good chance for advancement. P-2828, Chemical Week.

EDITORS WANTED

To expand its editorial services Chemical Week plans the addition to its New York staff of two assistant editors.

Qualifications desired:

(1) Graduate chemical engineer with 5 years experience in production, familiarity with chemical process equipment and process techniques, ability to write clearly and concisely.

(2) Graduate chemical engineer or chemist with 5 years experience in the chemical business —in sales or purchasing, but preferably in market research. In any case, a sound working knowledge of the industry is essential, as is the ability to write.

Please submit details — education, business experience, salary desired — ***by mail only*** to:

S. D. Kirkpatrick, Editorial Director
Chemical Week
330 W. 42nd St., New York 18, N. Y.

All applications will be held in strictest confidence.

EXECUTIVE OR ADMINISTRATIVE ASSISTANT—32—excellent background—law and chemical degrees —5 years legal and administrative experience in large chemical & pharmaceutical corporations—additional 5 years technical experience in supervisory capacity in government agency—conscientious, dependable. Proven ability in liaison, negotiations, contracts, legislation, law, etc.

PW 2842 Chemical Week
330 W. 42 St., New York 18, N. Y.

RECLAIMED & SURPLUS CHEMICALS

WILL BUY

Cancelled - Unshipped - Rejected
or Overstocked
Chemicals-Drugs-Solvents
Pharmaceuticals-Oils-Pigments, etc.

CHEMICAL SERVICE CORPORATION
96-02 Beaver St., New York 5, N. Y.
HAnover 2-6970

CASH FOR SURPLUS

- Excess Inventory
- Waste Solvents
- Spoiled Batches

Aceto CHEMICAL COMPANY INC.
82 BEAVER ST., New York 5, N.Y.
Digby 4-8760

SURPLUS CHEMICALS

SPOT CASH for Warehouse Stocks
SOLVENTS • PLASTICIZERS
ALKALIES • PIGMENTS • OILS
Your offers invited in strict confidence
TOBEY CHEMICAL COMPANY
1472 Broadway, New York 18, N.Y.
LOngacre 4-2520

READER SERVICE . . . . .

HOW TO USE COUPON

Circle page numbers of items about which you want more details. Then write your name and address on the coupon at the bottom of the page and mail it to us. Your request will be forwarded to companies concerned, the answer coming direct to you.

MAKES IT HANDY

Products and literature in this issue are listed on these pages. There are three indexes. (1) Editorial items on new products, new equipment, new literature; (2) products advertised. (3) The index of advertisers is on the following page.

THE NUMBERS

Advertisements:—There is a page number on the coupon for each advertisement. Before the number, may appear, L, R, T, B (left, right, top, bottom), locating the ad on the page; small letters following (a,b,c) indicate additional products in the advertisement.

Editorial Items:—Numerals are page numbers; the ABC's distinguish among items where more than one is on a page. There is a number on the coupon for each item referring to new products, equipment, and literature.

EDITORIAL ITEMS

For more data, circle number on coupon.

NEW PRODUCTS

2-methyl-4-chlorophenoxyacetic acid 30A
Penicillin Salt 30B

NEW EQUIPMENT

Continuous Measuring Gauge 24A
Copper-clad Steel 23A
Plate Exchanger 24B

TECHNICAL LITERATURE

CHEMICALS

Hydraulic Fluid 44B
Industrial Chemical Products 44C
Plasticizers 44A

EQUIPMENT

Heat Processing 44G
Heating Coils 44D
Instruments 44H
pH Indicator Chart 44E
Process Pumps 44F

GENERAL

Film 44I

PRODUCTS ADVERTISED

For more data, circle number on coupon.

Chemicals

Acids
- Citric, anhydrous 29
- Cresylic B4
- Palmitic 19b
- Stearic 19a

Aromatic 34
Bicarbonate of soda T24a
Butyls, industrial 10
Caustic potash Ic
Caustic soda Ia
Caustic soda, data sheet No. 735 6
Chlorine 45b
Chlorides, benzyl 46a
Coal tar 5
Defoamers, Antifoam A. 18
Esters, Maleic modified 30g
Formaldehyde 22
Fungicides 9b
Gums, ester 30c
Heavy, industrial 41
Industrial 1b, 3a
Investment fund B24
Lithium compounds 40
Lube oil additives 9e
Maleic esters, bulletin 7354 25
Metallic stearates 9f
Monohydrate of soda T24b
Oils, gloss 30f
Paint driers 9d
Paint industry specialities 9g
Petrolatums T4b
Petroleum sulfonates T4c
Phosphates 36
Plasticizers 9c
Potash 45a
Potassium bichromate 26c
Resins, berez 30e
Rosins
- Limed 30b
- Pale wood 30d

Sal soda T24c
Soda ash, natural 1b
Sodium bichromate 26a
Sodium chromate 26b
Sodium sulphate 26d
Stabilizers 9a
White oils T4a
Wood turpentine, steam distilled 30a
Laboratory apparatus & chemicals 3b
Liners
- Box, polyethylene 2b
- Drum, polyethylene 2a

Materials of construction, ferro-alloys 1a
Pumps, control 44
Sulphur 33

SEARCHLIGHT SECTION

(Classified Advertising)

Professional Services 40
EMPLOYMENT
Positions Vacant 42
BUSINESS OPORTUNITIES
Offered 42
PROPERTY
For Sale 42
EQUIPMENT—CHEMICALS
(Used or Surplus New)
For Sale 42
WANTED
Equipment 42
Miscellaneous 42

ADVERTISERS INDEX

Aceto Chemical Company, Inc. 42
Chemical Service Corporation 42
Consolidated Products Company, Inc. 42
Equipment Clearing House, Inc. 42
First Machinery Corp. 42
Kirkpatrick, S.D. 42
Perry Equipment Co. 42
Tobey Chemical Co. 42

READER SERVICE COUPON

Mail to Chemical Week, 330 W. 42nd St., N. Y. 36, N. Y.

NAME _____

POSITION _____

COMPANY _____

ADDRESS _____

CITY & STATE _____

Editorial Items

23A	24B	30B	44B	44D	44F	44H	
24A	30A	44A	44C	44E	44G	44I	

Advertisements

1a	2a	T4b	9b	9f	19b	B24	26d	30e	34	44
1b	2b	T4c	9a	9g	22	25	29	30f	36	45a
1c	3a	B4	9c	10	T24a	26a	30a	30g	40	45b
1a	3b	5	9d	18	T24b	26b	30b	33	41	46
1b	T4a	6	9e	19a	T24c	26c	30c			

Expires March 29, 1952

BOOKLETS . . . . . .

Chemicals

Plasticizers

76-p. brochure containing descriptive reports of 12 "Flexol" plasticizers as to their properties and applications in plastics, coatings, and rubber compounds—with emphasis on the use of plasticizers with vinyl chloride resins, since the vinyl chloride plastics industry is the largest user. Tables and charts afford comparisons of properties—volatility, extraction, resistance, low-temperature and electrical properties. Separate sections deal with the performance of the plasticizers in specific applications. Carbide and Carbon Chemicals Co.

Hydraulic Fluid

12-p. booklet concerned with the physical and chemical properties and performance of "Pydraul F-9," nonflammable-type hydraulic fluid developed for use in such equipment as die-casting machines, hydroelectric turbines, hydraulic presses or in similar operations where a flammable pressure transfer fluid constitutes a hazard. Monsanto Chemical Co.

Industrial Chemical Products

24-p. pocket-sized booklet briefly describing firm's line of standard and specialized products covering the fields of protective coatings, flooring binders and cements, insulating compounds, packaging specialties, etc. The digest is intended as a guide to asphalt emulsions, asphalt, rubber and resin adhesives, coatings and sealers. The Flinkote Co.

Equipment

Heating Coils

66-p. illustrated publication outlining capacities, selection, performance, installation, and dimension data for the firm's line of steam and hot water coils. The line of lightweight extended surface heating coils described here includes standard coils, coils for unit installation, heavy duty high pressure steam coils, non-freeze coils and many special purpose coils for process and comfort heating. The Trane Co.

pH Indicator Chart

pH indicator chart showing the hydrogen ion concentration ranges and color changes of the firm's indicators in addition to giving instructions for the preparation of the solutions. Eastman Organic Chemicals Dept., Distillation Products Industries.

Process Pumps

6-p. folder explaining the construction features and operation of process pumps designed specifically for the handling of corrosive and abrasive liquors—particularly liquors having a high percentage of suspended solids. Allis-Chalmers Mfg. Co.

Heat Processing

4-p. bulletin defining processing as "a series of precise preparations to achieve either a better product, more production, lower unit costs . . ." stresses the need for precision in heat processing. Bulletin goes on to describe and illustrate principles of heat application in reference to various solid and fluid products. Selas Corp. of America.

Instruments

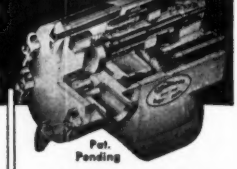
20-p. catalog reviewing the firm's line of instruments intended to be of interest to the biochemist and food technologist as well as the industrial laboratory man. Catalog gives information on construction details, operation, models, prices and accessories and replacements for such instruments as automatic titrators, Coleman spectrophotometers, pH meters, vitamin accessories, etc. Wilkens-Anderson Co.

General

Film

15 minute 16mm sound motion picture entitled, "Magnifying Time with the Kodak High Speed Camera," makes the point that time control is now possible with a high speed motion picture camera; illustrates idea by showing sequences of camera studies of explosions, the operation of relays, vacuum coating of metals and plastics, studies of cam action, etc. Eastman Kodak Co.

WATEROUS PUMPS assure UNIFORM FLOW CONTROL!



No internal contact or friction between rotor and housing. Fixed clearances assure constant flow settings. Ideal for applications requiring controlled capacities. *Available in 316 Stainless Steel.*

CAPACITY—1 to 100 GPM
PRESSURE—Up to 125 lbs.

Waterous DEPENDABLE PUMPS SINCE 1886

WRITE TODAY FOR COMPLETE PUMP SPECIFICATIONS

WATEROUS COMPANY
84 Fillmore Avenue East • St. Paul, Minnesota

ADVERTISER'S INDEX

CHEMICAL WEEK

DECEMBER 29, 1951

ADVANCE SOLVENTS & CHEMICAL CORP. ... 9
Agency—Asher, Godfrey & Franklin, Inc.

BARRETT DIVISION, ALLIED CHEMICAL & DYE CORP. ... 5
Agency—McCann-Erickson, Inc.

CARBIDE & CARBON CHEMICALS CO., A DIVISION OF UNION CARBIDE & CARBON CORP. ... 25
Agency—J. M. Mathes, Inc.

CELANESE CORP. OF AMERICA ... 22
Agency—Ellington & Co., Inc.

CHEMICAL MFG. CO., INC. ... 41
Agency—J. Hayden Twiss, Advertising

COMMERCIAL SOLVENTS CORP. ... 10
Agency—Fuller & Smith & Ross, Inc.

CHURCH & DWIGHT CO., INC. ... T24
Agency—J. Walter Thompson Co.

CROSBY CHEMICALS, INC. ... 30
DODGE & OLCOTT, INC. ... 34
Agency—Peck Advertising Agency

DOW CORNING CORP. ... 18
Agency—Don Wagnitz, Advertising

EBERSTADT & CO., INC., F. ... B24
EMERY INDUSTRIES, INC. ... 19
Agency—Ruthrauff & Ryan, Inc.

HARSHAW CHEMICAL CO., THE ... 3
HEYDEN CHEMICAL CORP. ... Back Cover
Agency—Sommers-Davis, Inc.

HOOKER ELECTROCHEMICAL CO. ... 6
Agency—Charles L. Rumrill & Co., Inc.

INTERNATIONAL MINERALS & CHEMICAL CORP. ... 3rd Cover
Agency—J. Hayden Twiss, Advertising

MAAS CHEMICAL CO., A. R. ... 36
Agency—Heintz & Co., Inc.

MEHL MANUFACTURING CO. ... 2
Agency—Julian J. Behr Co.

METALLOY CORP. ... T40
Agency—F. H. Faber, Advertising

NATURAL PRODUCTS REFINING CO. ... 26
Agency—Michel-Cather, Inc.

PFIZER & CO., INC., CHARLES ... 29
Agency—Doyle, Kitchen & McCormick, Inc.

PHILIPP BROTHERS, INC., METALS & CHEMICALS ... 1
Agency—Arlington Advertising Agency

RICHES-NELSON, INC. ... B4
Agency—Givaudan Advertising, Inc.

SONNEBORN SONS, INC., L. ... T4
Agency—Hicks & Greist, Inc.

TEXAS GULF SULPHUR CO., INC. ... 33
Agency—Sarger-Pummell, Inc.

UNION CARBIDE & CARBON CORP., CARBIDE & CARBON CHEMICALS CO. ... 25
Agency—J. M. Mathes, Inc.

WATEROUS CO. ... 44
Agency—F. H. Faber, Advertising

WESTVACO CHEMICAL DIVISION, FOOD MACHINERY & CHEMICAL CORP. ... 2nd Cover
Agency—James J. McMahon, Inc.

BUSINESS STAFF

SALES MANAGER ..... Bayard E. Sawyer

BUSINESS MANAGER ..... Albert E. Weis

Atlanta 3 ..... Ralph C. Maultsby, 1311 Rhodes-Haverty Bldg., Atlanta

Chicago 11 ..... Alfred D. Becker, Jr., Steven J. Shaw, 520 N. Michigan Ave.

Cleveland 15 .... Vaughan K. Dissette, 1510 Hanna Bldg.

Dallas 1 ..... James Cash, First National Bank Bldg.

Los Angeles 17 ..... Jos. H. Allen, 1111 Wilshire Blvd.

New York 36 ..... Knox Armstrong, Robert S. Muller, Charles L. Todaro, 330 West 42 St.

Philadelphia 3 .... William B. Hannum, Jr., Architects Bldg., 17th & Sansom Sts.

San Francisco 4 ..... Ralph E. Dorland, 68 Post St.

Boston 16 ..... 1427 Statler Bldg.

Detroit 26 ..... 856 Penobscot Bldg.

Pittsburgh 22 ..... 738 Oliver Bldg.

St. Louis 8 ..... 3615 Olive St., Continental Bldg.

SHORTAGES ARE INTERMITTENT

Products as basic as ours... Caustic Potash Carbonate of Potash Sulphate of Potash Muriate of Potash Ferric Chloride and Liquid Chlorine... are likely to be in short supply on occasion... But from time to time we have on hand sufficient material to cover the normal demands of our customers

If you have need for these potash and chlorine chemicals...now, or in the months ahead...let us know about it. We will be glad to discuss your requirement.

International MINERALS CHEMICALS is the new name for the old ISCO line of potash and chlorine products now being made by International Minerals...an old name in the potash field – now expanding its research and production facilities for the chemical industry.

International MINERALS CHEMICALS

POTASH DIVISION

INTERNATIONAL MINERALS & CHEMICAL CORPORATION

20 NO. WACKER DRIVE, CHICAGO 6, ILL. • 61 BROADWAY, NEW YORK 6, N. Y.

ANOTHER INTERNATIONAL PLANT TO SERVE INDUSTRY

HEYDEN

BENZYL CHLORIDE

FINE HEYDEN CHEMICALS

Benzyl Chloride is an unusually versatile intermediate which is finding use in an increasing number of manufacturing processes. Whether your application is in pharmaceuticals, dyes, perfumes, quaternary ammonium compounds, resins or plasticizers, Heyden Benzyl Chloride will more than meet your requirements for quality and uniformity. It is produced in refined and technical grades, and is shipped in nickel drums or carboys.

Heyden's leadership in the chlorination of toluene and the production of chlorinated aromatics dates back more than a quarter of a century. Research chemists and production engineers will want to investigate the chloro derivatives of benzyl chloride in syntheses similar to those mentioned above. Typical of other interesting and useful Heyden chlorinated products are the chlorobenzoyl chlorides and the ortho-chloro derivatives of toluene, benzaldehyde, benzotrichloride and benzoic acid.

Write now for samples and further information.

OTHER HEYDEN CHLORINATED COMPOUNDS

Ortho-Chlorobenzoyl Chloride
Para-Chlorobenzoyl Chloride
2,4-Dichlorobenzoyl Chloride
3,4-Dichlorobenzoyl Chloride

Ortho-Chlorobenzaldehyde
Ortho-Chlorobenzoic Acid
Ortho-Chlorobenzyl Chloride
Ortho-Chlorobenzotrichloride
Ortho-Chlorotoluene

HEYDEN
CHEMICAL CORPORATION
393 SEVENTH AVENUE, NEW YORK 1, N. Y.
CHICAGO • PHILADELPHIA • SAN FRANCISCO
DETROIT • PROVIDENCE

Serving Industry Through Finer Chemicals

Benzaldehyde • Benzoates • Benzyl Chloride • Bromides
Chlorinated Aromatics • Creosotes • Formaldehyde
Formic Acid • Glycerophosphates • Guaiacols
Hexamethylenetetramine • Medicinal Colloids • Methylene
Disalicylic Acid • Paraformaldehyde • Parahydroxybenzoates • Penicillin • Pentaerythritols • Propyl Gallate
Resorcinol • Salicylates • Salicylic Acid • Streptomycin